INSIDE: WHY PRIVATE PROPERTY GATES CONTINUE TO CLOSE

Montana Outdoors

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A MAGICAL PLACE The new Yellowstone Wildlife Management Area is much more than a fabulous public hunting area. Explore the central Montana property on page 6. Photo by Todd Kaplan

FRONT COVER On page 14, a moose fan explains why he admires these massive monarchs. Photo by Donald M. Jones.

Montana Outdoors

NOVEMBER–DECEMBER 2008

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Mislabeled photo confusing

On page 14 of your last issue (September–October), you show a picture of a bird labeled "spruce grouse," but if I'm not mistaken, the bare red patch shows it is actually a blue grouse (what you now call dusky grouse). By the way, what genius decided on that new name? I like the old one better.

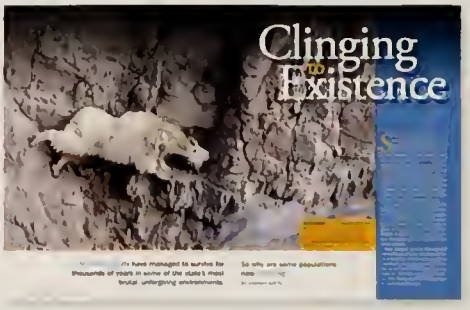
J. Robert Gunderson
Billings

You are correct about the mislabeled photo; the bird is a dusky (blue) grouse. As for the name change, that became official in 2006, when the American Ornithologists' Union committee on classification and nomenclature announced that the genus Dendragapus *comprises two species. New DNA evidence published in 2004 showed that the blue grouse of the Rocky Mountains and those of the Pacific Coast and Sierra Nevada ranges inhabit separate, isolated habitats with no gene flow between the two populations. As a result of these findings, what was once the blue grouse throughout the West is now the dusky grouse of the Rocky Mountains and the sooty grouse of the Pacific Coast and Sierra Nevada ranges.*

The most obvious differences between the sooty and dusky grouse are the bare skin patches that show on males. The patch is yellow on the sooty grouse and tends to be red on the dusky grouse. Dusky grouse also lack the distinct tail band of the sooty grouse, and the two species have different mating calls and other courtship behaviors.

Bird specialists first proposed splitting the blue grouse into two species in 1931 based on observable differences. However, not until recent DNA advances have scientists been able to prove that the different-looking grouse do not interbreed and are thus separate species.

Snow machines too close



Your recent article "Clinging to Existence" (September–October) describes the downward trend of mountain goats, a species entirely dependent on small, specialized winter habitat niches. It should be a wake-up call for Montana land managers, wildlife biologists, and concerned citizens to take action immediately to reverse mountain goat population declines.

For a long time, public land managers in Montana and other western states have zoned snowmobiles out of important deer and elk winter ranges. However, little has been done to confine "high-marking" and extreme-terrain snowmobiling, done by a relatively small number of snowmobilers into previously secure mountain goat sanctuaries. A single windblown ridge may sustain a mountain goat for the entire winter. As a biologist, I once witnessed a nanny and kid that had spent a week or more after a heavy snowstorm under a small 50-foot-long ledge, with little to eat but still able to conserve energy. While winter forage under such extreme conditions is meager, the conservation of energy combined with access to forage are necessary ingredients for winter survival. Surely state and federal biologists must agree that goats pushed to expend energy to flee snowmobile disturbance into less desirable habitat adversely affects their chances for survival.

Isn't it time for FWP biologists to consolidate winter mountain goat habitat maps and request that land management agencies prohibit snowmobiling within a half mile of these occupied and historic habitats?

Greg Munther, Ph.D.
Missoula

Quaking aspen clarification

I am writing regarding your Outdoors Portrait of the quaking aspen in the September–October issue. It is commonly believed that a single aspen grove is one clone, as you write. However, according to a technical paper published by the U.S. Forest Service in 2006, "...studies have shown that intermixing of clones on the landscape is common...."

Gale Dupree
Loyalton, CA

Mystery slipper

I found this lady's-slipper orchid by Yogo Creek, north of Big Timber, just after reading the orchid article in your magazine ("Hunting the Elusive *Orchidaceae*," July–August). When I got home and compared it to the pictures, I didn't think it looked like any of the ones in the article. Can you tell me what type it is?

Amanda Olvera
Ashland

Steve Cooper, vegetation ecologist for the Montana Natural Heritage Program, replies: I would say the orchid is Cypripedium montanum *(mountain lady's-slipper); it looks a good deal like* C. candidum *(white lady's-slipper), but according to the PLANTS USDA database,* C. candidum *does not occur in Montana. It's primarily a plant of tallgrass prairie, ranging from Ontario south through the Great Lakes states. Identifying a plant solely on the basis of one picture is a bit risky, but I think in this case we are on fairly safe ground. There is a lot of variability within single species, and species also vary in appearance depending on the time of year—all of which contribute to confusion in identification.*

TOM DICKSON

"This is mostly what we do at elk camp anyway, so we figured we'd save money on gas and just have it here."

THANK YOU, MR. LINCOLN

Recently, FWP acquired a remarkable piece of property known as the Lincoln Ranch. Located 70 miles northwest of Great Falls, the ranch contains 7,540 contiguous acres along 14 miles of the Marias River. Gary Olson, FWP wildlife biologist in Conrad, says the property is the largest undeveloped tract of riparian habitat on the Marias River and one of the largest in the region. You can float from one end to the other and not see a single power line, pivot sprinkler, or farmstead. It's the same landscape Meriwether Lewis saw two centuries ago. In fact, Captain Lewis actually traversed the northern part of the ranch. He and his crew fled across the property in July 1806 after a fight with a band of Blackfeet warriors.

In addition to its rich history, the Lincoln Ranch contains oxbow wetlands, sagebrush grasslands, and a river bottom cottonwood gallery. This multi-layered plant community provides a wide range of habitats for waterfowl, mule deer, white-tailed deer, pheasants, Hungarian partridge, sharp-tailed grouse, raptors, and songbirds. Because of its high-quality habitat, the land likely also contains many wildlife species in greatest need of conservation, such as olive-sided flycatchers, snapping turtles, and spotted bats. The river holds burbot, northern pike, yellow perch, channel catfish, and walleye year-round, and trout in cooler months. As you can see from the photo at right, the scenery is magnificent.

FWP aims to maintain the property's wonderful natural state. We'll provide public access, but only with the least disruption to the landscape as possible. We plan to create a small state park campground, with a visitor contact station, interpretive signs, hiking trails, and a boat ramp. Any of these proposed developments would first require additional environmental assessments and public review.

How the ranch came into public ownership is quite a story. Charlie Lincoln, a local bachelor rancher and wildlife enthusiast, died in 2007. In his estate, he bequeathed his ranch to the Catholic Diocese of Helena with the stipulation that if the Diocese did not desire to hold the property in fee, FWP would be given "the right of first refusal" to meet the highest offer. In other words, the department could match the highest bid and acquire the property.

Earlier this year, the Diocese chose not to hold the property in fee, and the estate put the ranch up for bid. The highest bid came in at $7.6 million, slightly above the appraised value of $7.38 million. That seems like a lot of money, but consider that riverside habitat is becoming increasingly rare because of the high value that developers place on these areas for new home sites. What's more, despite mortgage woes elsewhere in the United States, prices for scenic, wildlife-rich ranches, often called "amenity properties," continue to escalate in Montana.

PHOTO COURTESY GREAT FALLS TRIBUNE, WWW.GREATFALLSTRIBUNE.COM

Both the FWP Commission and the state Land Board have approved the purchase price of $7.6 million. Most of the money fot the acquisition comes from the Habitat Montana Program, which uses hunting license fees to conserve critical wildlife habitat through acquisitions and conservation easements. The remainder was funded by the Governor's Access Montana Initiative.

I never knew Charlie Lincoln, but he must have been one smart fellow. He obviously cared deeply about both his church and the tremendous wildlife values of his ranch. The way he structured his will enabled him to leave the value of the land to the Diocese, while ensuring that the historically significant and wildlife-rich property itself reverted to public ownership—and will stay that way in perpetuity.

—M. Jeff Hagener, *Director, Montana FWP*

NATURAL WONDERS

ILLUSTRATION BY PETER GROSSHAUSER

Q. What's the difference between a federally endangered species, such as the pallid sturgeon, and a federally threatened species, such as the Canada lynx?

A. An endangered species *is* in danger of extinction throughout all or most of its range. A threatened species is *likely to become* endangered *within the foreseeable future* throughout all or most of its range.

Q. How do you tell a crow from a raven?

A. If you see a big, black bird in town or around your house, it's probably a crow. Ravens don't generally tolerate humans and are more likely to be found in forests. Ravens are also bigger, about 2 feet tall with a 4.5-foot wingspan (the size of a red-tailed hawk). Crows are only about 1.5 feet tall and have a 3-foot wingspan (closer to the size of a magpie). Also, when flying, the crow's tail is rounded, while the raven's is wedge-shaped (forming a V, as found in the bird's name). Another difference: Ravens soar, but crows don't.

Conservation groups aim to buy 320,000 acres

Mike Thompson says he was both excited and relieved this summer to learn that The Nature Conservancy (TNC) and The Trust for Public Land (TPL) were negotiating to buy 320,000 acres of western Montana forestland from Plum Creek Timber, a Seattle-based lumber and real estate firm, for just over $500 million. "This proposed acquisition will be huge. The lands are critical wildlife habitat, and they are terribly important for hunting recreation in western Montana," says Thompson, FWP regional wildlife manger in Missoula. "Hunters and others in western Montana have been hoping for something like this for a long time."

Parts of the Mission Mountains would be included in the proposed land deal. JOHN LAMBING

The parcels, totaling 500 square miles of forest, would comprise one of the biggest conservation sales of forestland in the United States. They include part of the Swan Valley, areas surrounding Missoula such as in the Garnet and Bitterroot mountains, and the Marshall Lake area in the Clearwater drainage. The Plum Creek properties contain important habitat for grizzly bears, wolverines, lynx, bull trout, cutthroat trout, and other wildlife. They also are popular for hunting, fishing, hiking, and other recreation. Thompson says the tracts are especially vulnerable to development because many lie in mountain foothills between bottomland ranches and national forests. "These are very accessible lands that people want to build on for the views and access to public land," he says.

Kat Imhoff, director of TNC in Montana, says the proposed acquisitions will be completed in several phases over the next two years. The conservation groups are negotiating with the federal and state governments to have public agencies acquire most of the tracts over the next decade. "As for the rest, it will probably be sold to private buyers who agree to conservation easements that restrict development and maintain public access," Imhoff says.

That's good news for hunters and other recreationists, says Thompson. "People have been using this land for decades as if it was public. Only recently have they realized it was private and could someday be developed, divided, and locked up."

Robert Rasmussen, a Montana TPL field representative, notes that access to more than just the Plum Creek properties is at stake. "Most of that land is checkerboarded with national forest," he says. "If access is locked up, it could restrict public use on thousands of acres of public land."

Though overall timber harvest on the land will decline, Imhoff says the deal includes provisions for another ten years of logging. Third-party-certified sustainable forestry standards would be applied in choosing where to cut and how much. She adds that the land sales will occur in a way that maintains property tax revenues to local governments.

According to Eric Love, director of the TPL's Rocky Mountain Program, the acquisition will fit with his organization's emphasis on collaboratively working to conserve the Swan Valley landscape. "For the past decade, we've really focused on preserving parcels in the Swan that are of ecological significance or allow public access to national forest or wilderness. It was a high priority for us to secure these Plum Creek tracts in public ownership."

CRP declines spell bad news for grassland birds

While you still can, enjoy the current populations of waterfowl and upland game birds in the northern Great Plains. Numbers will likely begin to dwindle soon due to the loss of millions of grassland acres now enrolled in the federal Conservation Reserve Program (CRP).

CRP, which began in 1985, pays farmers to take highly erodible land out of crop production and plant it primarily to a mixture of grasses and forbs. The grasslands stabilize soil, reduce erosion, and provide rich wildlife habitat. Landowners sign up for ten-year contracts, during which they agree not to raise crops on the acres in return for annual payments.

The program has been credited with widespread improvements in soil retention, water quality, and wildlife populations. "CRP helped create a tremendous recovery for waterfowl, upland game birds, and grassland nongame birds across the northern Great Plains over the past 20 years," says Jeff Herbert, assistant chief of the FWP Wildlife Division. "We also saw benefits to mule deer, white-tailed deer, and sharp-tailed grouse. The large tracts of grassland habitat really changed the productivity of the landscape."

As CRP contracts expire, however, many of those grassland tracts are being plowed up and put back into agricultural production. Herbert says a CRP decline will not only reduce wildlife populations but also hunting opportunities. "Many areas of the Dakotas that had been enrolled in CRP and hunter access programs are now coming out of those programs. For species like pheasants, which showed record population gains over the past decade due to CRP, we're definitely going to see less hunting opportunity and lower harvests," he says.

According to the U.S. Department of Agriculture (USDA) Farm Services Agency, which administers the program, Montana has lost over 300,000 CRP acres in the past two years. The agency estimates the state will see a total of 1 million acres expire by the end of 2011, one-third of the acres enrolled in Montana. Mike Checkett, a waterfowl biologist for Ducks Unlimited, Inc., says those acres won't be replaced anytime soon. "The USDA has not held a general sign-up for some time and will not likely do so in the near future," he says.

The recent farm bill passed by Congress lowered the cap on total allowable CRP acres nationwide from 39.2 million to 32 million, roughly the current amount. Dave Nomsen, vice president of legislative affairs for Pheasants Forever, says CRP acreage will decline by another 12 million acres over the next three years, mostly in the Prairie Pothole Region stretching from north-central Montana to Iowa. "We're heading toward a greatly diminished CRP," says Nomsen. "Last year the two Dakotas alone lost 700,000 CRP acres."

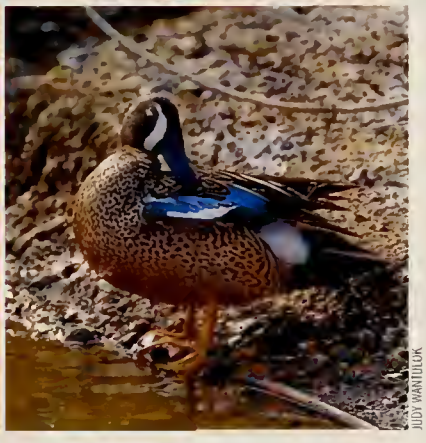
Many farmers in the Midwest are pulling out of CRP because they are receiving higher prices for grain, especially corn. Increased demand for ethanol encourages growers to plow CRP grasslands as well as native prairie that may not have been worth planting in the past, says Checkett. In addition to CRP losses, "since 2002, the Dakotas and Montana have lost 502,000 acres of native prairie, 63,868 acres in 2007 alone," he says.

Corn isn't the only grain driving grassland-to-cropland conversion, says Herbert. "The price of corn is so high that cattle feedlots are looking for barley and other grains for feed," he says. "Those factors, along with increasing worldwide demand from countries like China and India, are driving up grain prices."

Though rarely done in Montana, landowners can withdraw from CRP but must pay a penalty and return payments made under the contract. USDA Secretary Ed Schafer announced last spring that "early withdrawals" nationwide were running 50 percent higher than the same time in 2007.

According to Nomsen, CRP payments no longer compete with what farmers in many areas now get for renting their land for agricultural production, even factoring in higher fertilizer and tractor fuel costs due to rising oil prices. He says the USDA must make its payments more competitive. "And for that to happen, the American public has to decide whether cleaner water and more wildlife are worth the extra cost."

JIM HERRLY



JUDY WANTULOK

Populations of pheasants, other upland birds, and prairie ducks such as blue-winged teal will decline as millions of acres in the Great Plains are converted from grasses to corn, barley, and other crops. Montana stands to lose one-third of its total Conservation Reserve Program acres, which are credited with boosting bird populations across the state's eastern half.

A New Piece of Paradise

As I'm walking along a bluff overlooking the Yellowstone River, all I can think about is what a perfect place this would be for someone to build a house—and how glad I am knowing no one ever will.

I'm visiting the new Yellowstone Wildlife Management Area (WMA) and Yellowstone River State Park, about 30 miles east of Billings. My colleagues at Fish, Wildlife & Parks, which acquired the property earlier this summer, have gushed about the site, extolling its wildlife diversity, new hunting opportunities, miles of lush riverfront bottomlands, and potential for a new public campground just a stone's throw from Pompeys Pillar. The new acquisition was so important that Governor Brian Schweitzer attended the opening dedication ceremony in June. So I need to see what all the commotion is about.

My tour guides are Gary Hammond, FWP regional supervisor in Billings, and Bob Gibson, coordinator of the region's FWP Communication and Education Program. As we drive toward what was known as the Circle R River Ranch, Hammond tells me the department purchased the property from a seller who had attracted the attention of developers hoping to create a private "hunting community," a type of development Hammond says "is happening more often around here." The property contains 3,976 deeded acres and includes 5 miles of wooded

FWP's newest wildlife area and state park opens up more than 9,400 acres of hunting, hiking, and wildlife watching, as well as camping and Yellowstone River fishing. And it's only 30 miles from Billings. BY TOM DICKSON

PUBLIC LAND, IN PERPETUITY A grand view of lush river bottomlands and irrigated cropland opens up from a bluff overlooking the new Yellowstone Wildlife Management Area and Yellowstone River State Park.

TODD KAPLAN

Yellowstone River shoreline. The acquisition also secures for public use 5,450 acres of Bureau of Land Management (BLM) and state land that had been difficult to access. "It amounted to an incredible two-for-one deal for the public," Hammond says.

As we drive into the new WMA from the east entrance, dozens of mourning doves fly up from the gravel roadside where they had been feeding on sunflowers, and meadowlarks spill out from an old field of crested wheatgrass. Looking out over the river from a bluff on this uncharacteristically cool late-summer morning, Hammond points to the back channel where last spring he flushed large flocks of mallards and Canada geese. He indicates another spot where wild turkeys regularly congregate. Wildlife biologists estimate the property also holds at least 100 mule deer, 200 whitetails, and roughly 50 pronghorn antelope, as well as pheasants, sage-grouse, sharp-tailed grouse, Hungarian partridge, other waterfowl, and even an occasional elk.

Gibson drives us past expanses of native bluebunch wheatgrass, green needlegrass, and big sagebrush. The dirt road we're on will likely be developed enough to allow access into the center of the property close to the BLM holding. Like on other WMAs, off-road motorized use will not be permitted. "This is a place for walking, where people can get out and hike all day if they want to," Hammond says. We continue on through a vast black-tailed prairie dog colony, the peripatetic rodents whistling to announce our presence. With dozens of prairie dogs running around, we're not surprised to see a golden eagle gliding overhead. Two coyotes hunting the fringe of the colony sit down to watch us before racing off. In the distance, my binoculars reveal two tom turkeys feeding on grasshoppers, the insects still sluggish in the chilly morning air. Then a pronghorn buck stops to stare at the truck before bouncing over a ridge. All this wildlife, and we've only been here half an hour.

One mile farther in, we spook two big mule deer bucks that bound ahead before plunging down a steep bank to the river bottom. The area has received almost no hunting pressure in recent years, and Hammond says just four bucks were killed in the past two hunting seasons. That means deer have lived long enough to grow impressive antlers. We trot to the ridge for a closer look at the racks on the two bucks, but the deer have disappeared. Muleys will do that often at the Yellowstone WMA. Deep sandstone canyons and ponderosa pine–lined coulees provide abundant escape routes and hiding places. Finding whitetails won't be any easier. Beneath the cottonwood-canopied river bottoms are dense, shoulder-high stands of willow, buffaloberry, and other understory shrubs where bucks can disappear.

PACKED WITH WILDLIFE

Visitors won't need a gun to enjoy this vast landscape. It's also a great spot for bird watching, sightseeing, photography, and hiking. FWP's regional native species biologist, Allison Puchniak, says the new acquisition harbors a wide variety of bird species using the grassland, shrubland, riparian, and

ponderosa pine habitats. Though FWP has not conducted a biological survey to document all the wildlife here, Puchniak plans to begin one soon.

Ray Mulé, FWP regional wildlife manager, says it was the site's habitat diversity that first attracted his attention. The uplands consist mostly of ponderosa pine breaks and canyons interspersed with open sage benchlands and grasslands. Grassland plant communities alone generally harbor more than 300 wildlife species, he says. What's more, rocky bluff outcrops carved by the Yellowstone River provide habitat for Townsend's big-eared and northern myotis bats, milksnakes, and greater short-horned lizards. He notes that the prairie dog colony could provide food and shelter for 30 other species, such as grasshopper sparrows, burrowing owls, and ferruginous hawks. And then there are those 5 contiguous miles of lush river bottom, sloughs, and oxbow lakes. "Riparian and wetland communities support the highest concentration of plants and animals in all of Montana," Mulé says. "They're like wildlife factories." Montana Audubon estimates that more than half of Montana's 245 bird species use riverside habitats, and FWP has identified 17 species most in need of conservation that rely on riparian areas or wetlands. Also in the river bottom are 90 acres of irrigated alfalfa, providing additional forage for deer, turkeys, and other wildlife.

As for the namesake river, the Yellowstone downstream of Billings is loaded with sauger, channel catfish, smallmouth bass, and burbot. Hammond says that FWP has no plans for a boat ramp—the Gritty Stone Fishing Access Site is 1 mile upstream across the river—but anglers will be able to fish from the WMA's river shoreline.

The proposed state park will be modest. Though no decisions will be made until an environmental assessment is completed, FWP has suggested establishing a campground along the river for campers, anglers, hunters, and visitors to Pompeys Pillar, a national historic landmark just 5 miles to the east. The agency may also add hiking trails and interpretive signs. Joe Maurier, chief of the FWP Parks Division, says he wants to station a park manager at the site. "What I like about Parks Division involvement on a large landscape like this is we would have a site presence. We could keep an eye out for fires, off-road driving, and other problems," he says. "At the same time, we'd have someone there to answer questions and provide interpretation of the area."

According to Gates Watson, director of The Conservation Fund's (TCF) Montana office, the owner of the Circle R River Ranch wanted to sell the property to a public agency but needed the sale completed faster than FWP could manage. To acquire the land, FWP worked with the nonprofit land conservation organization, which was able to quickly negotiate a purchase agreement with the owner. "For us, the fact that the acquisition opened access to more than 9,000 acres of public land was a big deal," Watson says. In April, the FWP Commission approved buying the property from TCF for $5.3 million, a 5 percent discount from the appraised value and roughly $1 million less than the original asking price. Most of the funding came from FWP's Habitat Montana Program, which purchases conservation easements, leases, and wildlife management areas using hunting license dollars. The remainder came from the Governor's Access Montana Initiative, which was approved by the 2007 legislature.

The acquisition proposal met with overwhelming public approval. Supporting it were the Billings Rod and Gun Club, Montana Wildlife Federation, Laurel Rod and Gun Club, Magic City Fly Fishers, and Public Lands/Water Access Association, Inc. "We're seeing an increasing demand by folks in the Billings area for public land," says Mike Whittington, a member of the Billings Rod and Gun Club who sits on the FWP regional Citizen Advisory Committee. "This

Tom Dickson is editor of Montana Outdoors.

▸ Biological Oasis

FWP will consider acquiring property for a new WMA only if the land contains plant communities and wildlife species most in need of conservation (referred to as "Tier 1" species in the 2005 Montana Comprehensive Fish and Wildlife Conservation Strategy). And the more the better, which was the case with the Circle R River Ranch. Roughly 90 percent of the property contains riparian wetland, mixed-shrub grassland, and other Tier 1 vegetation community types. And though surveys have yet to be conducted, biologists expect that the property may hold a dozen or more different Tier 1 wildlife species, including sage-grouse and burrowing owls. "The Yellowstone WMA is a particularly biologically rich site for both habitat and wildlife," says Ken McDonald, FWP Wildlife Division chief.

Tier 1 Vegetation Community Types

Community type	% of area
Riparian wetland	1
Mixed broadleaf	1
Sagebrush and salt flats	15
Mixed-shrub grassland	30
Grassland	44
Non-Tier 1	9
TOTAL	100

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Burrowing owls may live among the area's prairie dog colonies.

Tier 1 Wildlife Species Expected To Occur (based on existing habitat):

Bald eagle	Greater sage-grouse	Mountain plover
Long-billed curlew	Burrowing owl	Olive-sided flycatcher
Spotted bat	Townsend's big-eared bat	Pallid bat
Black-tailed prairie dog	Meadow jumping mouse	Snapping turtle
Spiny softshell turtle	Western hog-nosed snake	Milksnake

HABITAT DIVERSITY (clockwise from top) Mule deer hide amid the sandstone rimrocks and rough pine breaks that comprise much of the Yellowstone Wildlife Management Area. Crested wheatgrass fills the remnants of homestead-era farm fields, with the Bull Mountains rising to the north. The Yellowstone River bottoms are vital habitat for migrating songbirds, raptors, and waterfowl; part of the fertile lowlands eventually may be developed into a state park campground with interpretive signs and hiking trails. Several dozen wild turkeys roam the upland fields, pine hills, and river bottoms, feeding on a variety of foods ranging from grasshoppers to Russian olives.

PHOTOS BY BOB GIBSON/MONTANA FWP

site opens a whole lot of recreational opportunities to hunters and also hikers, birders, and photographers."

Not everyone supported the project, however. Several local landowners did not want hunters and other visitors driving past their property, raising dust and increasing threats of possible vandalism. Hammond says the county has applied dust-abatement compounds to the road, and FWP promises to increase the presence of game wardens, especially during hunting season. The county will continue receiving, in the form of annual "payments-in-lieu-of-taxes," the equivalent of property taxes that would be assessed on a private landowner.

CONSERVATION STRATEGY

Ken McDonald, FWP Wildlife Division chief, says the department considers acquiring land for a WMA only after proposals from area biologists undergo extensive internal and public review. A key consideration is that proposed properties contain plant communities and fish and wildlife species "most in need of conservation" (or "Tier 1" species) as identified by the 2005 Montana Comprehensive Fish and Wildlife Conservation Strategy. "The riparian, sagebrush, grassland, and mixed-shrub grassland on the property are all top-priority communities," McDonald says. "Then you have bald eagles along the river, sauger in the river, and also the likelihood of sage-grouse, milksnakes, and nearly a dozen other Tier 1 species. From a wildlife conservation standpoint, this was ideal."

FWP decided to purchase the riverside property not just for the wildlife but also its many other public recreation values, says Jeff Hagener, FWP director. Hagener explains that the WMA and state park represent a new approach by the department to derive broader public benefits from acquisitions. "Historically, we had a silo mentality, where the wildlife folks would focus on their particular silo—wildlife areas—and the parks people on their silo, and the fisheries folks on theirs. But with land values going up the way they are, we have to be more strategic and broaden our scope to work with many partners and get the most benefits to as many people as possible."

On the way back to the WMA entrance, Gibson slows the truck as seven wild turkeys cross the road. At the prairie dog colony, another golden eagle has joined the first, and the pair circles overhead. Then a mule deer doe and two fawns watch us with unblinking eyes before climbing a nearly vertical sandstone bluff and disappearing behind a stand of juniper. We take one last look at the grand vista where the tour began, the dark green swath of river bottom below, the wide Yellowstone flowing past, and Billings in the distance. I think of a glossy color brochure I read the night before, produced by a property management company that had been promoting the ranch's abundant amenities. On one page was a photograph of the same scene we're now admiring. The caption: "A view from a possible home site overlooking the Yellowstone River."

For a map of the area or directions, call the FWP regional office at (406) 247-2940.

MENDING

FENCES

Ranch appreciation work days allow sportsmen to give something back to landowners who open up their property each fall.

BY ALAN CHARLES

Early on a sunny Saturday this past April, a group of 16 hunters and anglers gathered a few miles east of Colstrip at the Rocker Six Cattle Company Ranch, owned by the Wally and Clint McRae families. They came from Helena, Miles City, Ashland, Colstrip, and places in between. Some carried generators, chain saws, and power tools, while others toted hammers, fencing pliers, and work gloves. All of them brought energy and enthusiasm. ▸▸

The sportsmen came to donate time and effort in appreciation for the many years the McRae Ranch has provided wildlife habitat and public hunting opportunities.

The McRae Ranch Appreciation Work Day was organized by Bill Dawson, an Ashland-area sportsman and Fish, Wildlife & Parks game warden. Dawson worked with the Colstrip Rod and Gun Club and the McRae family to determine which projects would help the ranch most, and what materials and people were needed. The Montana Game Wardens Association helped sponsor the event.

There's nothing particularly newsworthy about hunters helping out ranchers. Montana's hunting heritage and traditions have been built by landowners and sportsmen caring for the land and wildlife. Many similar efforts have taken place in years past, and many individual hunters regularly donate time to help landowners who have allowed them to hunt.

Despite the ordinary nature of these activities, however, it's important the stories get told. Landowners and hunters share much more common ground than indicated by the negative stories in the media lately about conflicts over access (for example, see "Permission Denied," page 28). The future of Montana's healthy landscapes and wealth of wildlife depends largely on these two groups working together on issues of mutual concern.

Alan Charles is the FWP landowner/ sportsman relations coordinator.

> "This is the first time in ten years we've had all of our fences in good shape. It was a special day to have these folks volunteer their time to help us out on the ranch."

SOUND OF POUNDING

At 8 a.m., ranchers Clint and Wally McRae welcomed the team of volunteers. Work crews were quickly organized and given a brief orientation on safety and project procedures. Soon the sound of power generators and pounding hammers filled the air at a site where volunteers were building a windbreak. Elsewhere on the ranch, fencers began pounding posts and splicing wires.

At noon, when the volunteers traded their tools for the sack lunches they'd brought, ranchers and hunters sat side by side, sharing stories about their families, the ranch's history, and past hunting trips. Then it was back to work. By late afternoon, the crews had built a covered windbreak for sheltering livestock and put up or repaired several miles of fence. "That windbreak would have taken us two weeks to build, and this is the first time in ten years we've had all of our fences in good shape," said Clint McRae as he surveyed the work. "It was a special day to have these folks volunteer their time to help us out." Some volunteers had to leave early, but the rest stayed for a dinner of ranch beef barbecued at the ranch headquarters.

When the sun set, there was little doubt that the day had been a success. The volunteers had completed their projects, but more importantly they had donated time and effort to say thanks to a ranch family. The day had a festive feeling because

BUILDING RELATIONSHIPS Below and right: Hunters and anglers from across the state construct a livestock windbreak as part of a ranch appreciation work day near Colstrip.

the effort represented a way to celebrate Montana's hunting heritage and strong landowner-hunter relations. Ideally, the relationship between landowners and hunters is reciprocal. Landowners provide wildlife habitat and hunting opportunities through good stewardship and a sense of community, while hunters show their appreciation by hunting responsibly and donating time and effort to help with ranch projects. The ranch appreciation work day reinforced that cooperative partnership.

HOW CAN WE HELP?

A month later, at an eastern Montana ranch, a different group of hunters gathered to donate a day of work to help a local ranch family. This effort at the Cecil Brown Ranch was organized by the Montana Bowhunters Association (MBA), working with regional FWP staff. Months earlier, during the annual MBA convention, the group's members had learned that Mark Forman, the Brown Ranch owner and operator, had died in a ranch accident. They asked what they could do to help the family and show their appreciation for the years of public hunting access and wildlife habitat the ranch has provided. Ranch family members said a spring snowstorm had damaged fence lines; because they were short-handed, they might not be able to fix all the fences in time to pasture cattle.

After several weeks of e-mails and phone calls, the volunteers set a date and laid out a plan. As at the McRae Ranch, they came from all directions, including Bozeman, Helena, Billings, Broadus, and Miles City. Some arrived with all-terrain vehicles, while others brought fence stretchers, post-pounders, pliers, and staples. Some were experienced fencers, but most had no fencing experience and were simply eager to learn and help.

The ranch family members welcomed and thanked the group of volunteers. After explaining the work detail and providing safety instruction, they sent crews to different parts of the ranch, located in the Knowlton Hills east of Miles City.

There is no better way to gain a sense of a ranch's size and terrain than to walk miles of fence, hiking up and down the hills and into the coulees. You imagine the work it must have taken to build these fences, many of them 70 years old or more, and learn about the many different ways there are to erect a gate, brace a corner, and build a water gap.

On that spring day in eastern Montana, the country was as shiny as a newborn colt. Wildflowers bloomed in all directions, and the scoria buttes shimmered with yellow sweet clover freshened by an early-morning rain.

One volunteer took a break to photograph a pair of nesting curlews—a rare sight in this location. Others saw plovers, wild turkeys, red-tailed hawks, eagles, and antelope, and a few found shed deer antlers. All gained an appreciation for the health and vitality of this piece of eastern Montana.

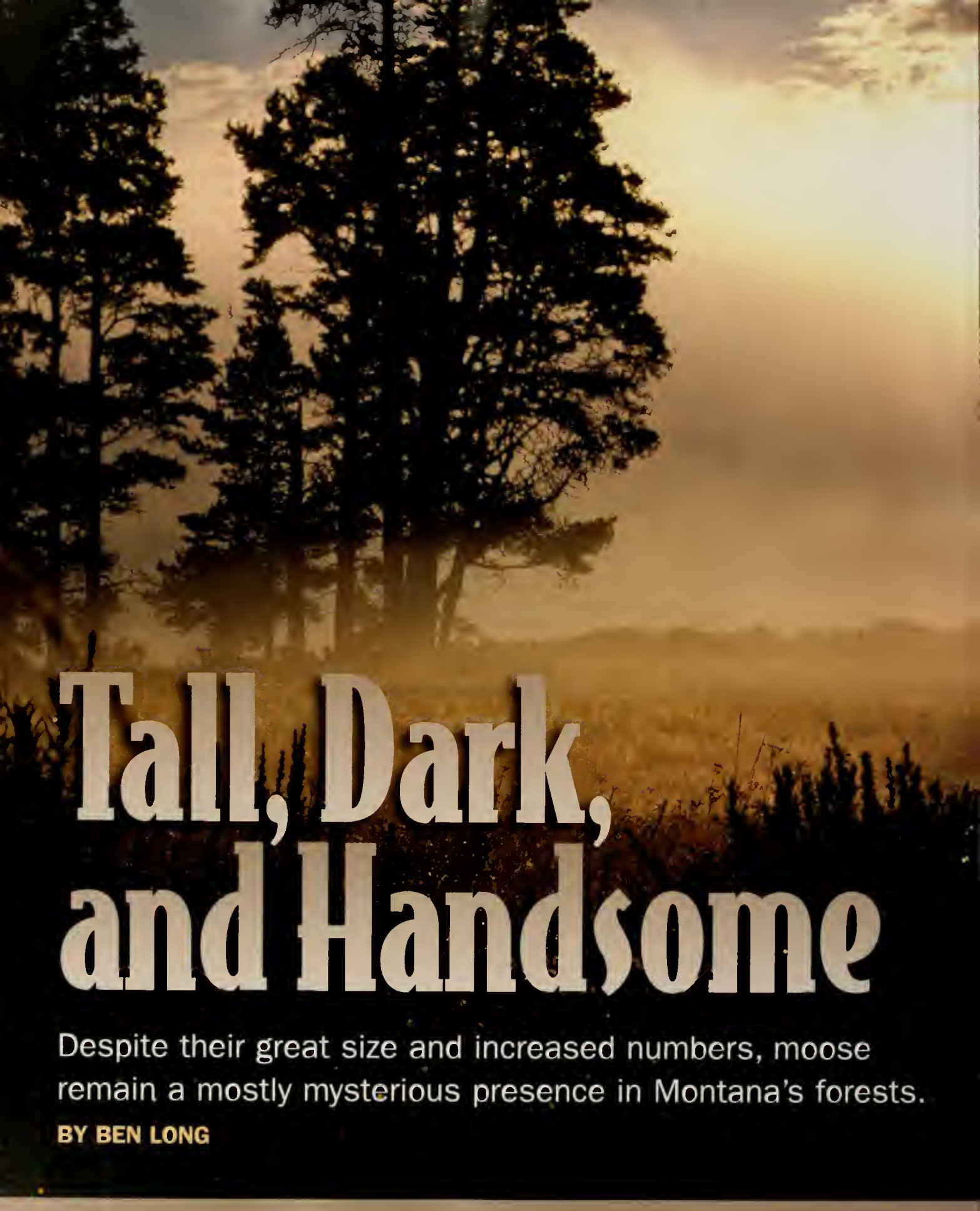
When crews regrouped at day's end, the pastures had fence lines ready for cows. The volunteers, though tired, had smiles on their faces as they traded tools for water bottles. As he looked down a line of tightly stretched, well-stapled barbed wire, MBA president Jim Gappa said, "It gives me great pleasure helping a Montana family in need of a little assistance, and just letting them know we heard of their situation and we do care. I hope to be involved in another work party next year."

It was just another day, just another successful demonstration of individuals making a special effort to celebrate landowner/hunter relations by donating time and effort to help a Montana ranch family.

To learn how to sponsor a ranch appreciation work day, contact your local FWP office or Alan Charles at (406) 444-3798; acharles@mt.gov.

THEIR AIM IS TRUE Left and below: Members of the Montana Bowhunters Association and regional FWP staff fix fences on the Cecil Brown Ranch. The work was to thank the ranch for providing years of hunting access and maintaining healthy wildlife habitat.

PHOTOS BY ALAN CHARLES/MONTANA FWP



Tall, Dark, and Handsome

Despite their great size and increased numbers, moose remain a mostly mysterious presence in Montana's forests.

BY BEN LONG

MICHAELFRANCISPRINT.COM

Karen and I were newlyweds basking in a balmy autumn afternoon in the Paradise Valley—and not the only ones with romance on our minds as we strolled the banks of the Yellowstone River. We heard a crash in the cottonwood thicket immediately behind us. Something big was closing in fast.

A panicky mule deer doe burst into the open ahead of us, moving full out, eyes rolling. The deer ran past so close we could feel the vibrations as her hooves struck the earth before she splashed across the river channel. Then a thought occurred to me: I wonder what she's running *from*?

"Moose!" Karen shouted. We ducked low as a massive bull moose thundered past in pursuit, his black flanks wet as a race horse's, bloodshot eyes bulging from their sockets, dewlap flapping wildly. If he saw us, he never let on. He just shot across the river, straight after the doe—who apparently liked her males not quite that tall, dark, and handsome.

That's one of the great things about moose: You never know what to expect.

DEMANDS RESPECT

Despite its great size, Montana's largest deer species is somehow hidden in the shadow of the state's other big game. Moose are not as

glamorous as bighorns and elk, nor as populous as whitetails and muleys. Yet *Alces alces* is one of the world's grand big game animals, an icon of the North Woods. Montana is one of only 12 states with a moose population and provides more hunting opportunities than almost anywhere south of Canada.

I like an animal that demands respect. In my local barbershop, there's an old black-and-white photo of a cowboy who was foolish enough to enter a corral containing a moose at Spotted Bear on the South Fork of the Flathead. The moose has kicked the cowboy with its front hoof into the air like a football. Moose may appear docile, but they can be deceptively dangerous. Last winter, a half-blind bull near Columbia Falls kicked snowmobiles and treed skiers. Tragically, a man was killed near his Red Lodge cabin in 1998, when on his morning stroll he irked a rutting bull.

Moose—the word is derived from an Algonquin term meaning "eater of twigs"—range across the northern hemisphere, often in tundra and boreal forest. Here in Big Sky Country, they live in mountain meadows, river valleys, and willow flats west of a line running roughly south along the Rocky Mountain Front then southeast to the Beartooth Range. The moose is an animal that hunters in Montana, Sweden, Siberia, and China all have in common.

Surprisingly, more of the massive ungulates exist today than before European settlement. Montana's early explorers rarely mentioned moose. Members of the Lewis and Clark Expedition, for example, saw countless elk and bison, but noted "mooce-deer" only twice in Montana, once near the mouth of the Milk River and again close to the Continental Divide near today's town of Lincoln. Likewise, the moose is largely absent from the Montana journals of Canadian explorer David Thompson, who traipsed northwestern Montana in the early 1800s.

Veteran outdoorsman Gary Sloan, who grew up near Troy, recalls the stir created when a moose waltzed through his family's homestead shortly before World War II. "The whole town came out to see it," says Sloan, now in his 70s. "We had never seen a moose before. Nobody had." Fortunately, that has changed. FWP biologists estimate that Montana is now home to about 4,800 moose, and the population is stable in most of the animal's range.

FWP biologist Jerry Brown says two main

"It doesn't happen right away, but usually you see moose coming in 15 to 20 years or so after a logging or a burn."

BIG RACK, BIG SCHNOZZLE
The antlers on the Alaskan moose subspecies can weigh 75 pounds and extend 70 inches wide. Those on the Shiras subspecies (left) found in Montana are smaller, though still impressive. The moose's characteristic long face and overhanging muzzle are perfectly suited to the animal's behavior and environment. "That large muzzle allows a moose to neatly, even delicately, strip tender green leaves from branches and willow shoots," wrote Erwin A. Bauer in *Antlers: Nature's Majestic Crown*. It also allows moose to "feed selectively on submerged vegetation...keeping its eyes well above the water line. That way a cow can watch out for her calf and any potential predators as well."

factors have made Montana more moose-friendly over the past 100 years: logging and fire. Moose survive best in forests with plenty of shrubby browse such as willow and aspen. This vegetation grows profusely in the wake of fires, logging, and other forest disturbances. "Fires in the late 1800s and early 1900s were probably responsible for the initial expansion of moose across western Montana," Brown says. The next expansions came after the logging heydays from the 1950s through '70s. Moose benefited greatly. The animals need pockets of mature forests, particularly as shelter during hard winters, but they feed primarily on second-growth forest vegetation. "The fires we have seen in recent years, such as the ones up the North Fork of the Flathead, should prove beneficial for moose," Brown says. "It doesn't happen right away, but usually you see moose coming in 15 to 20 years after a logging or a burn."

Lacking funds for moose research and thorough population monitoring, biologists know far less about moose than they do elk and deer. For instance, it is still unclear why moose calf survival dipped in the 1990s. Scientists do know that moose naturally exist at much lower densities than other Montana big game. Moose have adapted to the cold North Woods and evolved to reproduce slowly to prevent overwhelming the limits of their habitat. FWP biologists estimate that for every 27 elk and 135 deer in Montana, there is only a single moose.

THE BIGGEST DEER

Moose are the largest of all cervids, in Montana averaging 800 to 1,000 pounds for bulls and 600 to 800 pounds for cows. That's four times heavier than a deer and slightly larger than an elk. (I know hunters who swear they have packed out moose that weighed a ton, perhaps two tons by the time they hauled it back to the truck, but they never had a scale to prove it.) Moose stand 5 to 6 feet tall at the shoulder, which angles up from the hips.

Moose have long legs, allowing them to wade through deep snow and wetlands and over blown-down timber. The animal's bulbous nose hangs over its mouth. Its coat is dark brown to black, which helps absorb heat in midwinter. Below the chin is a fleshy expansion of skin called the dewlap, or bell. I once saw a bull near the Fisher River with a dewlap that dangled nearly to its knees. Biologists don't know exactly what this fleshy beard does. It may be a display organ that enhances the profile of the head and neck. Or it could be a scent dispenser. During the rut, bulls roll around in basins of urine known as wallow pits, and the dewlap waves the funky perfume around.

Predators play a role in moose populations, though biologists aren't sure to what extent. Moose predators include people (hunters and highway drivers), wolves, cougars, and bears. Both black and grizzly bears eat calves, but grizzlies are also known to knock down and kill adult moose they ambush in riverside thickets. Wolves can limit moose numbers, particularly in parts of North America where the large ungulates are the only food source. In Montana, moose benefit from the fact that wolves also prey on deer and elk.

Human hunters in Montana are limited by a special permit lottery. Every year, FWP issues about 600 permits from roughly 23,000 applicants, making the overall chance of drawing a moose tag about 40:1 (the odds vary among hunting districts.)

Biologists divide North American moose into four subspecies: Alaskan, eastern Canadian, western Canadian, and Shiras. The subspecies in Montana are named for George Shiras III, a Pennsylvania congressman who was also a conservationist and a pioneer in wildlife photography. The Shiras is the smallest moose subspecies. The antler spread on a mature bull in Montana will run 45 inches, while an Alaskan bull may sport antlers 60 to 70 or more inches across.

But even 45 inches is impressive, and the racks of Montana bulls are increasingly attracting attention. "Compared to 20 or 30 years ago, hunters are more and more interested in looking for a large bull," says Brown. "Back then, hunters usually took the first bull they came across. Now people put more time in, looking for just the right one."

Moose hunters in Big Sky Country have a reasonable chance of seeing their name in the trophy antler record books. Montana has roughly 165 Shiras moose entered in the Boone & Crockett records for trophy big game killed with a firearm. Though fewer than half the number recorded from Wyoming, it's about equal to the trophies registered from Idaho and considerably more than other states with Shiras moose, including Washington, Colorado, and Utah.

Bull moose do not grow antlers for hatracks. Those sweeping, palmated annual growths of new bone are primarily showpieces to woo females and intimidate competing males. Moose antlers may also act as giant funnels that capture distant sounds—like cupping your hands against your ears—and improve the moose's already excellent hearing.

One fall backpacking trip, I saw a mature bull on Fifty Mountain with one antler sheared off near the base. I had to wonder what kind of furious battle that bull endured. As sports columnists would say, it was a season-ending injury.

Moose hunting is not easy, but it's not as

Montana moose distribution
The state's largest deer family member lives in mountain meadows, river valleys, and willow flats in the state's western third from Canada to the Absarokas.
Overall distribution
Winter range
MONTANA OUTDOORS/MONTANA FWP

Writer Ben Long lives in Kalispell, where he can be spotted drinking Moose Drool beer at Moose's Saloon.

MAJESTIC RACKS Like all members of the deer family, bull moose shed their antlers each winter and grow a new set each summer. That an animal can grow something so large in just a few months is one of the most astonishing feats of the natural world. The palmated bone structures attract cows, intimidate rivals, and may even enhance hearing. Antlers are also used to catch and hold an opponent during rutting matches, in which two bulls lock antlers and push forward into each other, testing their strength.

grueling as hunting elk. According to FWP, the success rates for moose and elk are roughly 80 percent and 25 percent respectively. Montana moose hunters spend on average ten days afield before filling their tag. Elk hunters put in an average of 31 days before a kill. The differences may have more to do with the nature of hunters than of the quarry. Some hunters buy an elk tag "just in case" they see one while deer hunting, but they don't seriously pursue elk. Most moose hunters spend decades applying for a permit and are more serious about their hunt.

Moose have a largely undeserved reputation as being dimwitted. To get a rough measure of an animal's intelligence, scientists measure brain capacity and compare it to body size. By this standard, the intellectual capacity of moose is similar to that of horses, and moose are even brainier than elk. Some moose have even been harness-broken and trained to pull wagons.

HALF-TON HOUSE GUEST

Moose can also become urbanized, like the mule deer in Helena and elk in West Yellowstone. In the 1990s, several moose spent winters in Whitefish eating landscaping shrubs. They became so habituated to people that one resident lured a moose inside his living room with a bowlful of corn chips. The fellow is lucky he didn't end up like the cowboy at Spotted Bear.

Montana Indians such as the Kootenai traditionally hunted moose if they had the opportunity, such as when the animals were bogged down in deep snow or water. Hunters reached floundering moose on snowshoes or in canoes, killing the animals with arrows or spears. Today, most moose hunters practice still-hunting. They watch shrubby old burns and clear-cuts through binoculars at dawn and dusk for signs of feeding moose. Then they approach from downwind for a closer shot. Some hunters prowl forest roads, hoping to find a moose close to the truck so they don't have to haul it too far. Others try calling in bulls during the rut.

I have tracked moose to their day beds in the snow, but they usually smell or hear me

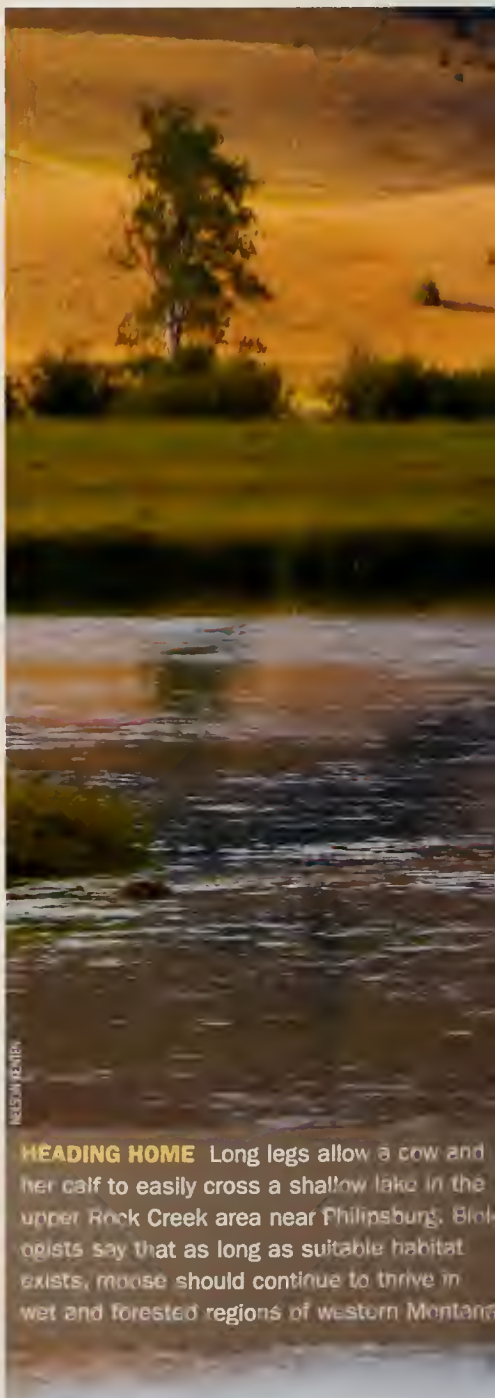
MONTANA'S EARLY MOOSE MANAGEMENT

In the early years of statehood, moose numbers in Montana dropped so low that hunting seasons were stopped. In a 1974 *Montana Outdoors* article, wildlife biologist Philip Schladweiler wrote: "Montana moose hunting was first regulated in 1872, with an annual closed season from February 1 to August 15. Hunting was banned year-round in 1897 following an apparent decline in numbers. Moose numbers evidently reached a statewide low around 1900. The 1909-10 biennial report of the Department of Fish and Game estimated a statewide population of 300 moose, whereas 'ten years ago these animals were practically extinct in the state.' The largest herd in 1910 was found in the Foss Fork area of Rock Creek in Granite County."

Due primarily to the abundance of shrubby willow and aspen browse that sprouted up following a series of massive fires in the early 1900s, moose numbers began to increase. Schladweiler continued, "As early as the winter of 1935-36, a Forest Service study in the Absaroka National Forest (now part of the Gallatin National Forest) just north of Yellowstone National Park reported seriously overbrowsed areas and a high percentage of dead willows."

Montana began considering the reinstatement of moose harvest in the early 1940s following documentation of deteriorating range due to overbrowsing in the Absaroka Primitive Area. "Despite a 1942 recommendation for controlled moose harvests which resulted from this study," Schladweiler continued, "legislation enabling Fish and Game Commissioners to set moose seasons was not enacted until 1945. In that same fall, the first open moose season in nearly 50 years occurred."

Moose hunter, circa 1900



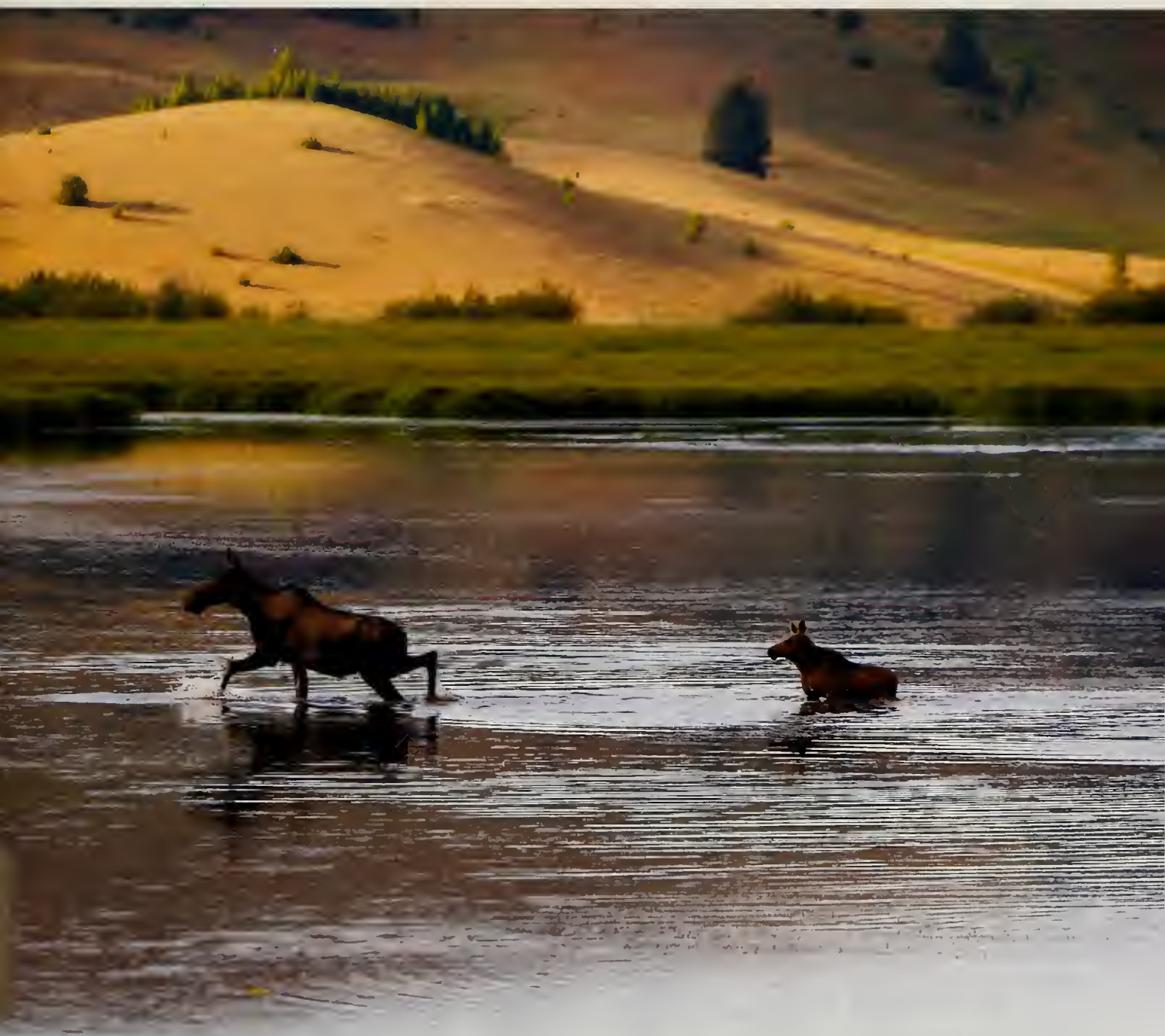
HEADING HOME Long legs allow a cow and her calf to easily cross a shallow lake in the upper Rock Creek area near Philipsburg. Biologists say that as long as suitable habitat exists, moose should continue to thrive in wet and forested regions of western Montana.

before I see them. Moose droppings are distinctive. The pellets are large and coarse, filled with tiny woody chips. Moose tracks have the classic cloven-hoof shape of deer and elk but are larger and more pointed. It can be difficult to tell a moose track from an elk track in soft snow. I look for the moose's long dark guard hairs, particularly in beds. Like deer and elk, moose rub their antlers on brush and saplings, but I've found that willow shrubs get thrashed more than any other woody species.

Killing an animal as large as a moose is serious business. Any rifle or archery setup adequate for bull elk is probably suitable for moose. Think .30-06 and up. Long shots are generally unnecessary. Sloan, the Troy outdoorsman, has taken a couple of moose and dozens of elk. He recommends using premium bullets such as the venerable Nosler Partition and aiming carefully so the shot goes through the rib cage and perforates both lungs. Just as important is to bring the proper tools and appropriate knowledge for field butchering, along with friends and—if you can get it—pack stock. As with all big game, cool the meat quickly and get it out of the field promptly.

Brown and other FWP biologists say the future of moose in Montana is tied to habitat. Where young, shrubby forests mature into tall timber, moose populations will fade out. Where logging and fires convert old stands to shrub-fields and second growth, moose numbers will likely expand.

Optimistic that moose populations will remain healthy, I plan to keep my binoculars handy and continue applying for those special hunting permits. Even if I never draw a permit, I'm happy to know that my family and I will still have opportunities to see and admire this majestic and always-surprising monarch of Montana.



24-CARAT VENISON

QUICK SAUTÉED VENISON STEAK WITH PORT SAUCE

JUPITERIMAGES.COM

ADVICE ON PREPARING GOLD-STANDARD MEALS FROM PRIME CUTS OF DEER AND ELK MEAT

When the hunting season ends, I like to open our freezer and gaze at those tidy white packets of wrapped venison, stacked on the shelves like bricks of gold. And considering what farm-raised venison sells for these days, comparing the meat to 24-carat bullion is no great stretch. Specialty game shops across the country charge up to $55 a pound for loin chops and other choice cuts of farm-raised venison (tougher cuts such as shoulder run substantially less, though still far more than beef or even lamb). Using an average of $20 a pound, I figure each doe I harvest provides my family with meat that would cost a non-hunter $1,000 or more. ▶▶

BY TOM DICKSON

Those prices make king crab legs and lobsters look like items in the food bargain bin.

Why the high premium on venison? First, deer, elk, and antelope meat is good for you. Venison is low in calories, cholesterol, and fat, especially the saturated kind. It's also high in iron and vitamin B-12. Many people consider venison the original free-range, organic meat.

Second, wild venison is good for the environment. I don't know about domestically raised deer and elk, much of it grown in New Zealand, but the whitetails and pronghorn I harvest each fall tread with a gentle hoofprint on the landscape.

Third, nonhunters pay top dollar for venison because they consider it a rare treat, a meat purchased from specialty shops or in fine restaurants. (That comes as a surprise to people who grew up eating deer, elk, and antelope meat and consider it everyday fare.)

Tom Dickson is editor of Montana Outdoors.

Finally, there's the taste. I eat grass-fed beef and locally raised lamb, and occasionally dive into a rack of barbecued pork ribs. But if restricted to just one meat, it would be that of a bottomlands whitetail doe. A trimmed raw venison steak in the hand smells as fresh as a cool fall morning. When cooked, it becomes delicately textured and finely flavored. I'm not alone in my praise. Chefs throughout the world extol venison's culinary virtues.

Like beef, there are basically two categories of venison cuts: tough and tender. Each requires a different, and completely opposite, cooking technique. The article "Venison Alchemy" (November–December 2007) covered shanks, shoulders, and other tough cuts. It explained how the combination of moist heat, low temperature, and long cooking is essential for breaking down tough tissue and creating succulent, fork-tender dishes. What follows are recommendations for cooking the prime cuts—steaks, roasts, and medallions from the upper rump and the loin (the two long cylinders of meat, also known as the backstrap, on either side of the spine).

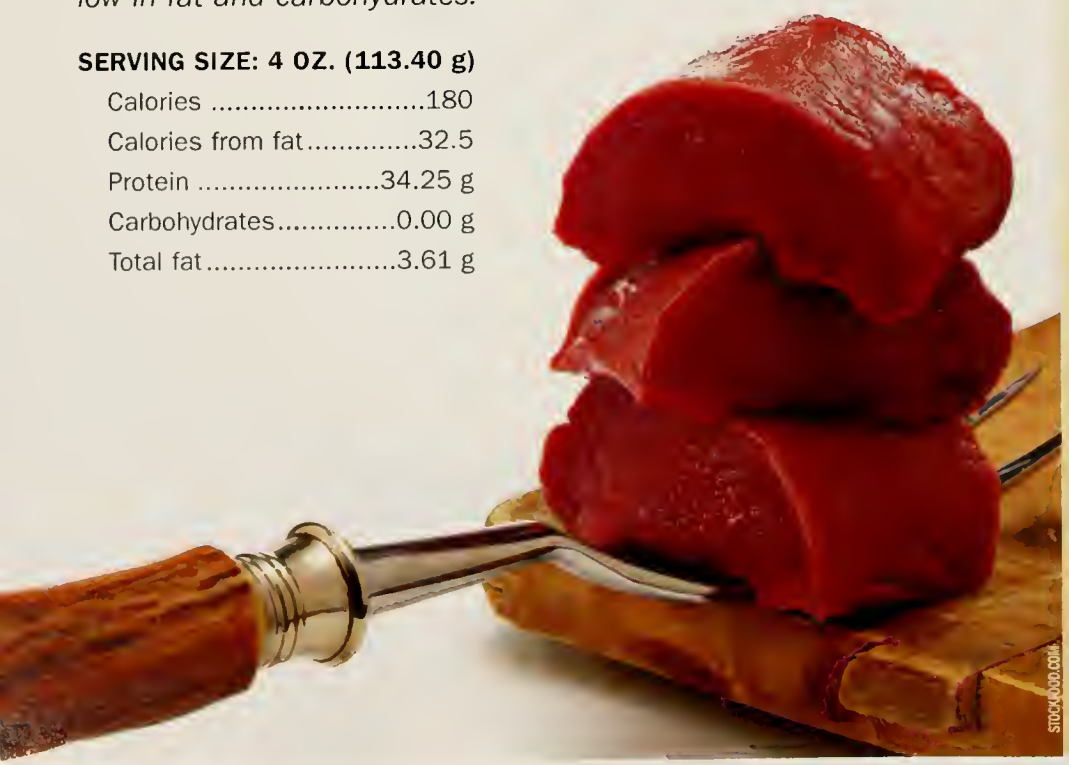
In many respects, cooks can view venison as they do beef. Both are the dark red meat of large grazing animals. And the cuts from both grazers

VENISON: A HEALTHY, FREE-RANGE, ORGANIC MEAT

Venison is high in protein and low in fat and carbohydrates.

SERVING SIZE: 4 OZ. (113.40 g)

Calories	180
Calories from fat	32.5
Protein	34.25 g
Carbohydrates	0.00 g
Total fat	3.61 g



NUTRIENTS	AMOUNT	DAILY VALUE*
Thiamin B-1	0.20 mg	13%
Riboflavin B-2	0.68 mg	40%
Niacin B-3	7.61mg	38%
Vitamin B-6	0.43 mg	21.5%
Vitamin B-12	3.60 mcg	60%
Vitamin D	13.61 IU	3.4%
Vitamin E	0.28 mg	1.4%
Folate	5.35 mcg	1.34%
Calcium	7.93 mg	0.79%
Iron	5.07 mg	28%
Magnesium	27.21 mg	6.8%
Potassium	379.89 mg	10.85%
Selenium	14.63 mcg	20.9%
Sodium	61.24 mg	2.55%
Zinc	3.12 mg	20.8%
Omega 3 fatty acids	0.11 g	4.58%
Omega 6 fatty acids	0.60	–

Source: The George Mateljan Foundation/www.whfoods.com

* Percent daily value based on a 2,000-calorie diet. U.S. Food and Drug Administration.

are similar: A sirloin of venison is a steak that comes from the lower back of the animal, as does beef sirloin.

But that's where the deer and the cow part company—and where cooks need to understand the fundamental differences between the two. Beef fat is tasty and marbled throughout the meat. Venison fat, on the other hand, tastes like boiled or burned leather when cooked. It exists primarily on the outside of the meat, mostly over the lower back and rump, and always should be trimmed.

Lacking veins of fat within the meat, uncooked venison has less moisture than beef. Though less fat content makes a serving of venison steak one-half leaner than a similar-sized beef steak, it also causes venison to dry out when cooking, requiring the use of cooking oils.

Many chefs and restaurant diners maintain that venison has more flavor than beef. Heavy with fat, beef has a mild, rich taste. Lacking fat, venison is tangier and more intense. That sweet tang comes from abundant capillaries in the muscle, providing the blood that gives raw venison steaks their rich, burgundy color. Blood is sweet; if you accidentally prick your finger and suck it, you can taste that sweetness. Chefs try to retain the sweet taste of venison by not overcooking the meat.

The longer you cook venison, the more bitter it becomes. That's what many people call the "gamey" taste. It's the same bitterness that comes from overdone liver, compared to the sweet taste of liver cooked just briefly at a high temperature.

The key to preserving venison's sweetness? Cook all tender cuts quickly at high heat.

My five favorite recipes for prime venison follow on the next page. With these and other choice-cut dishes, an essential first step is to remove all fat and "silver skin"—the white connective tissue running through the meat. When in doubt, cut off anything that's white.

Also, keep in mind that the gold-standard recipe for any choice cut is to simply season it with salt and pepper and grill or sauté the meat in olive oil for several minutes on each side. No sauces. No marinades. Just the sweet taste of venison. ▶▶

VENISON SANDWICH

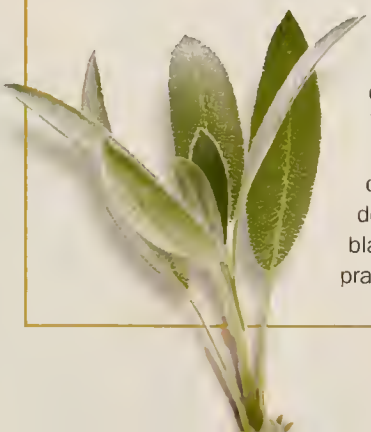
ISTOCKPHOTO

Gamey Venison? Other than the severely overdone steak my cousin Bobby fried up in his camper many years ago, I've never had so-called "bad" or gamey venison. Still, I know plenty of people who have. The most likely explanations for their distasteful experiences:

1. Sautéing or grilling the fat or silver skin: Unlike the tasty fat marbled through beef, the fat on deer and elk exists on the outside of the meat and reeks when cooked. This "burned leather" smell occurs when you fry venison without cutting off all the white fat and "silver skin"—the thin white membrane running through many cuts. Removing silver skin is like filleting a fish: Run a sharp knife with the edge angled against the membrane, not the meat, while pulling the silver skin tightly with the other hand.

2. Overcooking: Overcooking any blood-rich meat—including liver and duck—results in a bitter taste caused by the blood overheating.

3. Improper field dressing or butchering: If the animal's intestines are punctured during field dressing, the smelly bile and other matter can spill onto the meat and taint the flavor. If this happens, immediately wash off any intestinal matter, urine, feces, or udder milk with water or snow. Also, cool the deer or elk as soon as possible. This prevents bacteria from growing and "souring" the meat. Keep butchered cuts free of hair and, when sawing bone, bone dust, which smells like burned hair when cooked. Cut out all bloodshot meat where the bullet or lead fragments tore tissue and caused hemorrhaging.



4. Stress, rut, and diet: The facts on these possible causes are skimpy. Beef can get what is called dark-cutting, produced by stress that increases pH values. This causes the meat to turn dark red and, to some people, taste bad. No one is sure if stress also affects deer and elk. Many hunters say that rutting bucks or deer shot while running have a gamey taste. Also blamed for off-taste is a diet of mostly sage, though prairie mule deer and pronghorn usually taste fine. ■

Venison with Onions and Balsamic Vinegar

This elegant dish is easy and delicious and takes less than a half hour to prepare.

1 to 1½ lbs. loin or rump steak, trimmed
Salt and pepper
3 T. olive oil or clarified butter
1 to 1½ C. red onion, thinly sliced
¼ C. balsamic vinegar
½ C. beef stock or water
4 T. cold butter

In a frying pan, heat 2 T. clarified butter or olive oil over high heat. Meanwhile, lightly season all sides of meat with salt and pepper.

Add meat to pan and brown, 4 to 6 minutes per side depending on size. Remove meat to cutting board.

Add remaining 1 T. of clarified butter or oil to pan and sauté onions until nicely browned.

Add vinegar and cook until pan is dry. Add stock or water and bring to a boil, stirring to scrape glaze from pan bottom. To the sauce add a pinch of salt and pepper.

Add 2 T. cold butter to sauce and whisk in. Remove from heat and whisk in remaining butter.

Slice meat thinly (⅛ inch) across the grain. Place slices on heated plates and pour sauce on and around. Serve with wild rice and steamed broccoli or carrots. Serves four.

IS AGING VENISON NECESSARY?

Hunters I know who love venison age their deer or elk for two to seven days. During aging, enzymes break down the cell tissue in the meat, making it more tender and giving it a stronger and more complex flavor. Aging works particularly well on older animals, which have tougher meat. Hang the deer or elk in cool (33° to 50°F) temperatures, making sure you don't let the mercury drop below freezing. Meat that freezes and thaws repeatedly will dry out. Leave the skin on to retain moisture. You can also age skinned quarters, wrapped in cheesecloth, in a refrigerator. When butchering aged venison, trim off the dark meat that was exposed to air.

Quick Sautéed Venison Steak with Port Sauce

This is my go-to recipe for venison steaks when I get home late or guests drop by unexpectedly for dinner. Sometimes I throw some sautéed oyster or morel mushrooms on top for variety.

2 sirloin or top rump steaks (8 oz. each), or 4 inch-thick loin medallions
Salt and pepper
2 T. olive oil or clarified butter
¼ C. ruby port
1 T. cold butter

In a frying pan, heat clarified butter or olive oil over high heat. Meanwhile, lightly season both sides of steaks with salt and pepper.

Add meat to pan and brown on both sides, 2 to 3 minutes per side depending on thickness. Remove meat to cutting board.

Lower heat to medium. Deglaze pan with port, scraping up cooked bits from the pan bottom, for 1 minute. Remove from heat. Stir in juices from resting steaks. Add cold butter and whisk as it melts.

Place steaks on heated plates and pour sauce on top. Serves four.

Montana Venison Steak Rub

This is a hybrid of several different recipes, one of which is called Texas Steak Rub. It's a quick and easy way to spice up an ordinary venison steak.

4 venison steaks (8 oz. each) rubbed with olive oil
3 T. maple syrup
1 T. chili powder
1 T. black pepper
1 t. cumin
½ t. ground coriander
¼ t. ground cloves
3 cloves garlic, minced
3 T. olive oil

Grill steaks over high heat, 3 minutes on each side. Meanwhile, mix ingredients in a glass or ceramic bowl. Rub steaks with the mixture and then grill them another 2 minutes per side.

Mideastern Venison Kabobs

I experimented with a half-dozen recipes pulled from the Internet and Mideastern cookbooks to find one that approximated the aromatic kabobs I had years ago on a visit to Turkey. Kabobs are a great way to use the small chunks you trim off prime roasts and steaks to make them more uniform. (Save small chunks off the shoulder and other tough cuts for stews.)

2 lbs. venison steak or roast, cut into 1-inch cubes
½ C. olive oil
1 T. white vinegar
1 t. cumin
½ t. ground coriander
½ t. paprika
1 t. garlic, minced
½ t. salt
Assorted vegetables

Mix all ingredients except meat and vegetables in a ceramic or glass bowl. Add venison and cover completely with marinade. Place in refrigerator and let sit for 4 to 24 hours.

Put meat on skewers and grill over high heat for a total of 6 to 8 minutes, turning every 2 minutes. I prefer to put my meat and like vegetables on separate skewers so I can cook them for different amounts of time. For instance, peppers and onions take much longer to cook than mushrooms.

Venison Sandwich

I love cold venison and eat dozens of these sandwiches each year.

Bake a small roast at 325 degrees for 25 minutes in a toaster oven or regular oven. Once the roast cools, slice it thinly, apply a liberal amount of salt and pepper, and serve between slices of homemade bread with creamed horseradish. Small grilled steaks also make excellent sandwiches when served whole on grilled bread.

Print a recipe for your recipe box

Visit *Montana Outdoors* on-line for printer-friendly versions of these recipes: fwp.mt.gov/mtoutdoors

MIDEASTERN VENISON KABOBS

PERMISSION DENIED

For decades, most landowners granted requests by hunters to access their property. Why so many are changing their answer, and what that holds for the future of public hunting.

BY HAL HERRING

In the first half of the 20th century, the United States' unprecedented military and economic power was a source of great pride to its citizens. It was a time to celebrate the success of the world's boldest experiment in democracy and individual freedom. It was also a time to undertake something else no other nation had ever considered: restoring its vast heritage of wildlife, an important part of America's frontier that had been lost during the tumultuous years of settlement.

At the beginning, the picture looked bleak. In the Great Plains, the major bison herds that once covered the region had been nearly killed off by 1883. That was the year of the "Starvation Winter" for Montana's Blackfeet Indians, when hunter and writer James Willard Schultz would note that "of big game, none remained, either on the plain or in the near-by mountains, and small game such as rabbits, grouse, porcupines and beavers becoming very scarce." By 1910, only scattered, tiny herds of pronghorn antelope remained on the prairies. Elk numbers had dwindled to fewer than 10,000, hidden in high mountains or protected on private lands. Soon, flocks of ducks and geese disappeared as their wetland habitats were drained. By the 1930s, it seemed as though a treasure house of wildlife, the richest in the world, had been forever emptied within the course of a few decades.

Most of us know this story. It would be too depressing to recall if we could not take a drive across Montana today and see that the wildlife, the big game animals and great flights of waterfowl that were almost lost, has been restored to an extent that few people could have imagined in the early decades of the 20th century.

The restoration of North America's wildlife remains an epic and still-unfolding success story. It's a triumph of vision and hard work by generations of Americans who helped draft conservation laws, bought hunting licenses, and gladly paid federal gun and ammunition taxes that funded winter range purchases and game species reintroductions. With their enthusiasm and dedication, these conservationists altered the way Americans viewed their wildlife.

In recent years, one chapter in the story of America and its wildlife has been taking a different turn, and raising new questions. Just as it must have seemed to early conservationists faced with the near-extinction of elk, pronghorn, and waterfowl, the answers to this newest challenge are not yet obvious.

▸ THE FIRST GREAT WAVE

Beginning in the early 1980s, agriculture in much of Montana and other Rocky Mountain states underwent a great transformation. Consecutive years of narrow profit margins and debt drove out smaller operators. New landowners, often people whose sole income did not come from agriculture and who lacked connection to local communities, consolidated larger and larger holdings. This was no conspiracy to destroy the family farm but rather the simple, relentless logic of new economic conditions that favored larger economies of scale. A by-product of this change was that local hunters, accustomed to asking permission by knocking on the neighbor's door or over a cup of coffee at the town cafe, now had trouble even finding the new landowners, many of whom didn't live in Montana. And the landowners, unconnected to the community, had little reason to allow people they didn't even know onto their property.

Changes in outfitting and guiding also began to appear across the state. Outfitters traditionally took clients into the backcountry of national forests and wilderness areas to hunt elk and mule deer. But increasingly, outfitters were leasing private property, where their big game and bird hunting clients would not have to compete with the growing number of hunters on public lands. By the early 1990s, according to Fish, Wildlife & Parks, roughly 5 million acres of private land in Montana was leased for outfitting, rendering it off-limits to

AWAITING AN ANSWER A hunter and his son talk to a landowner about hunting deer. For decades, landowners and hunters found a mutual benefit from allowing public hunting on private land. But increasingly—for reasons both cultural and economic—that's no longer the case.

public hunting. Making hunting access even more difficult was a decision by the 1999 Montana legislature to change a law that for years had allowed public upland bird hunting on any private land not posted with NO TRESPASSING signs.

Two sacred values had driven head-on into each other: the right of private property owners to profit from their land by leasing as they saw fit, and the public's tradition of free access to wildlife, which federal courts repeatedly had said the states hold in the public trust. Hunters pointed out that they paid—with money, sweat, and political capital—to restore wildlife populations, and that they continued to pay license fees and federal taxes to manage that wildlife. Landowners countered that they provided much of the habitat for wildlife, which ate the grass that could put marketable pounds on their cattle. Besides, it was their land. Who were hunters or state agencies to dictate what the owners could or could not do with it?

THE BIG SIT-DOWN

"Landowners, outfitters, and hunters were all bringing proposals to the legislature, and every one of them was in direct opposition to all the others," says Kathy Hadley, a Deer Lodge rancher and former board member of the Montana Wildlife Federation. "Nothing was moving at all." Hadley was among a group of citizens representing sportsmen, landowners, and outfitters appointed in 1993 by then-Governor Marc Racicot to come up with solutions to the impasse. Known as the Private Lands, Public Wildlife Council, or PL/PW, the group was charged with increasing public hunting access and protecting wildlife habitat while supporting the outfitter industry and providing benefits to landowners who allow hunter access. One concept the group unanimously agreed to early on, and has continued to support, was that wildlife is a public resource and not a commodity that can be bought and sold. "We did not want to set a precedent by having the state pay for public access to the public's wildlife on private land," says Hadley. "But we were more than happy to pay for any impacts to private land that might be caused by allowing public access."

To raise money to compensate landowners who allowed public hunting, the PL/PW recommended that the state sell "guaranteed" big game hunting licenses, at market-driven prices, to nonresidents who didn't want to take the 50:50 chance of obtaining a big game license through the existing lottery sys-

tem and also agreed to hire an outfitter. The idea had something for everybody. Outfitters could make annual business plans knowing that a certain number of nonresident clients would get big game licenses. The revenue from nonresident licenses would help compensate landowners for opening their property to public hunting. Hunters would have more places to hunt.

Legislation resulting from the PL/PW recommendation gave FWP's fledgling Block Management Program a huge financial boost. "Enhancing Block Management was the PL/PW's response to the growing amount of private land being leased for outfitting, and we used outfitter-sponsored nonresident licenses as the way to pay for it," says Hadley. (In recent years, Montana has added several other funding sources.)

Block Management has been a great success. Hunters in Montana have access to more than 8 million acres of private and isolated public lands, from whitetail woods in the Flathead Valley to pronghorn antelope in the Terry Badlands to pheasants in the windbreaks by Glendive. According to FWP surveys, most hunters and enrolling landowners say the program works well. Yet despite the popularity of Block Management, the hunting access controversy continues to grow.

Hal Herring, of Augusta, is a contributing editor for Field & Stream *and has written for publications including* The Atlantic Monthly *and* The Economist.

▸ THE RECREATIONAL RANCH

Over the past few decades, another wave of change has swept across Montana, rolling in from more populated states such as Colorado and California. Like the previous wave, this one began with changes in agriculture, especially on ranches at higher elevations, where growing seasons are short and profit margins especially slim. The scenery, wildlife, and isolation of these sites became commodities far more valuable than any return the land produced in cattle, sheep, or hay. New landowners began buying property in Montana to experience a lifestyle and a freedom no longer available where they had made their fortunes or spent their working lives. During just three years, from 1999 to 2001, according to a University of Colorado study, 25 percent of all large ranches in the 27,500 square miles around Yellowstone National Park changed hands. Thirty-nine percent of those were purchased not for raising cattle or crops but for recreation such as hunting and fishing or privacy in a beautiful setting. Buyers priced out of places like Big Sky and the Paradise Valley soon discovered wildlife-rich and relatively affordable ranches and farms elsewhere in Montana.

Entering into this booming industry are powerhouses such as Orvis and Cabela's Trophy Properties unheard of in the real estate business 20 years ago, as well as longtime property marketing and management businesses. The boom has created a new term for these properties: amenity ranches. And some of the most sought after amenities are abundant wildlife and hunting opportunities.

The amenity ranch boom raises new challenges, and new fury, in the traditional-yet-delicate alliance among hunters, landowners, and outfitters. Once again, the conflict boils down to public wildlife living on private land. But in the new land ownership environment, many long-established relationships no longer exist. Traditional farmers and ranchers often come from a culture that values hunting and views wildlife as belonging to the public. They believe that elk, deer, pheasants, and other game are treasured resources that nevertheless should be harvested at the appropriate season like any other bounty of the land. Many amenity ranch buyers have never imagined such a concept. Some consider hunting a strange, if not distasteful, activity. And amenity buyers who purchase a ranch for personal hunting or leasing are unlikely to open their gates to local hunters they have never met.

"The traditional concept of public hunting has always been closely tied to traditional landowners," says Quentin Kujala, chief of the FWP Wildlife Division Management Bureau. "Farmers and ranchers who wanted hunters to come in and reduce the numbers of big game animals on their land had a partnership of mutual interest with those hunters. These days, in cases where recreation is the primary reason for owning a ranch, you have less of an overlap of those interests. And whether the gate is open to hunters always depends on the landowner."

A MODEL OF WILDLIFE CONSERVATION MODELS

In 1842, the U.S. Supreme Court affirmed the legal notion that America's wildlife should be held in trust for the public and could not be owned, as wild game had been in Europe, by a ruler or any individual. This was in keeping with America's fledgling experiment in democracy, and it would have enormous implications over the course of our history. As this radical notion evolved, it would become the basis for what modern wildlife managers and hunters call the North American Model of Wildlife Conservation.

At first, the concept of wildlife as a public resource belonging to everyone probably worked against any notion of conserving it. Certainly the histories of the buffalo or the pronghorn during most of the 19th century offered little encouragement. They more accurately illustrated the so-called "tragedy of the commons," where unregulated resources belonging to everyone are valued by no one.

But by 1870, when it became clear that apparently inexhaustible numbers of wild animals were, in fact, extremely finite, the radical—and unique—notion of public wildlife became the salvation of those dwindling populations. Conservation leaders such as President Theodore Roosevelt saw the fate of America's wildlife as tied to the fate of the nation: Americans' willingness to squander such a commonly held treasure did not bode well for democracy's future. These leaders, almost all of them hunters and fishermen who had either lived or traveled on the western frontier, were the spokesmen for a citizenry anxious to save what was left of the nation's wildlife heritage. As early as 1876, before the last great buffalo slaughter near Miles City, roughly 500 sportsmen's groups had formed across the country to advocate for game laws and conservation. It took a while, but by the mid-20th century wildlife losses were slowly turning to gains.

Under the North American model, everyone

> **“Successful wildlife conservation in the past has worked only if all parties are involved in working out solutions and all parties benefit from those solutions. That’s not happening right now.”**

In addition to reducing public hunting access to private land, increased leasing and new amenity ranches make it harder for wildlife managers to keep overabundant elk and deer populations in check. In the Madison Valley, for example, FWP has been working with the Madison Valley Ranchlands Group to find hunting seasons acceptable to both ranchers and hunters. One goal is to reduce the number of wintering elk that congregate and eat haystacks, overgraze range, and knock down fences. “We had roughly 7,700 elk on our private lands last winter,” says Lane Adamson, project manager for the coalition of landowners, which works on preserving ranchlands from housing development and other issues. “We are so far down the slope on range conditions it will be hard for some of these lands to ever recover.”

A NEW WAY?

Jeff Hagener, FWP director, recognizes the plight of landowners beset with too many hungry big game animals. He also acknowledges the right of landowners to do with their land as they wish and, equally, the fact that Montana holds wildlife in the public trust. “The historical foundation of wildlife management, where landowners allow the public hunter onto their land, has done a great job of restoring elk, deer, and other wildlife,” says Hagener. “But for many reasons—some economic, some cultural—we’re seeing that more and more landowners no longer want the public hunting on their land.” The continual decline of hunting access, Hagener worries, could lead to less hunter participation, reduced hunting license revenue for habitat conservation, and waning citizen support for wildlife management. “The public hunter helped build the same wildlife populations that now make Montana so appealing to new landowners,” he says. “If hunters start dropping out, we could see a reversal in the great gains we’ve made over the past century.”

Hagener believes that hunters, landowners, outfitters, and other interested parties need to find new ways to manage wildlife that recognize both private property rights and public hunting traditions in light of Montana’s changing social and economic landscape. For that to happen, the state will need to convince more landowners to allow public hunting on their property.

Years ago, most ranchers opened their gates because they wanted help reducing overabundant elk or deer populations, or simply liked the idea of sharing their land each fall with town and city folk. Though these reasons still apply, a growing number of landowners are finding that payments from outfitters and hunters outweigh any warm feelings they may get when consenting to requests from nonpaying hunters. Block Management has helped, but only to a certain extent, as the rising value of hunting leases outstrips the state’s ability to compensate landowners.

“The PL/PW, Block Management, and our other access and acquisition programs have been a great start, but we need to do more,” Hagener says. “Public access is a top priority for this department, and that won’t change, but neither will the new social and economic realities. All we know for certain is that successful wildlife conservation in the past has worked only if all parties are involved in working out solutions and all parties benefit from those solutions. That’s not happening right now. And until it does, hunting access will remain the single biggest issue facing this department.”

in the United States and Canada had the right to hunt and fish within the boundaries of laws—laws made in a democratic manner by the same people who owned the resources. In its way, it was as revolutionary as the idea of democracy itself. Because wildlife belonged to everyone, it could not be bought and sold, and laws were enacted to halt the market hunting that had devastated populations across North America. Hunters and anglers agreed to buy licenses, and their license fees were used to purchase habitat and restore fish and game populations. The Pittman-Robertson Act of the early 1930s, designed by hunter-conservationists, was a tax on firearms and ammunition that has raised over $5 billion for wildlife and habitat. The Migratory Bird Hunting and Conservation Stamp Act of 1934 provided the money to purchase and maintain America’s federal system of wildlife refuges. The system now contains 5.2 million acres of waterfowl habitat that also provide refuge to at least one-third of all endangered and threatened species in the United States.

The North American model worked, like no other system of conservation on the planet. And it remains unique to North America, the only continent that retains a modern culture of hunting and fishing along with the world’s healthiest populations of elk, deer, pronghorn, moose, grizzly bears, waterfowl, and hundreds of other wildlife species.

Theodore Roosevelt, 1905. He saw the fate of America’s wildlife as tied to that of the nation.

THE CHANGING FACE OF GAME LAW

Five female game wardens talk about how they got into wildlife law enforcement, what the work entails, and why they can't imagine doing anything else.

BY TOM DICKSON

Kqyn Kuka didn't see herself operating heavy machinery for the rest of her days. In 2006, the recent college graduate was working on a ranch when she impulsively picked up a phone and called the Fish, Wildlife & Parks headquarters in Helena. "Basically, I said, 'I'm lost. I don't know what to do with my life,'" says Kuka. Her call was transferred to the Enforcement Division Recreation Program, where Kuka learned that a water safety officer position had recently opened. "After hearing about my experience and education, they said I might qualify, so I faxed them my resume."

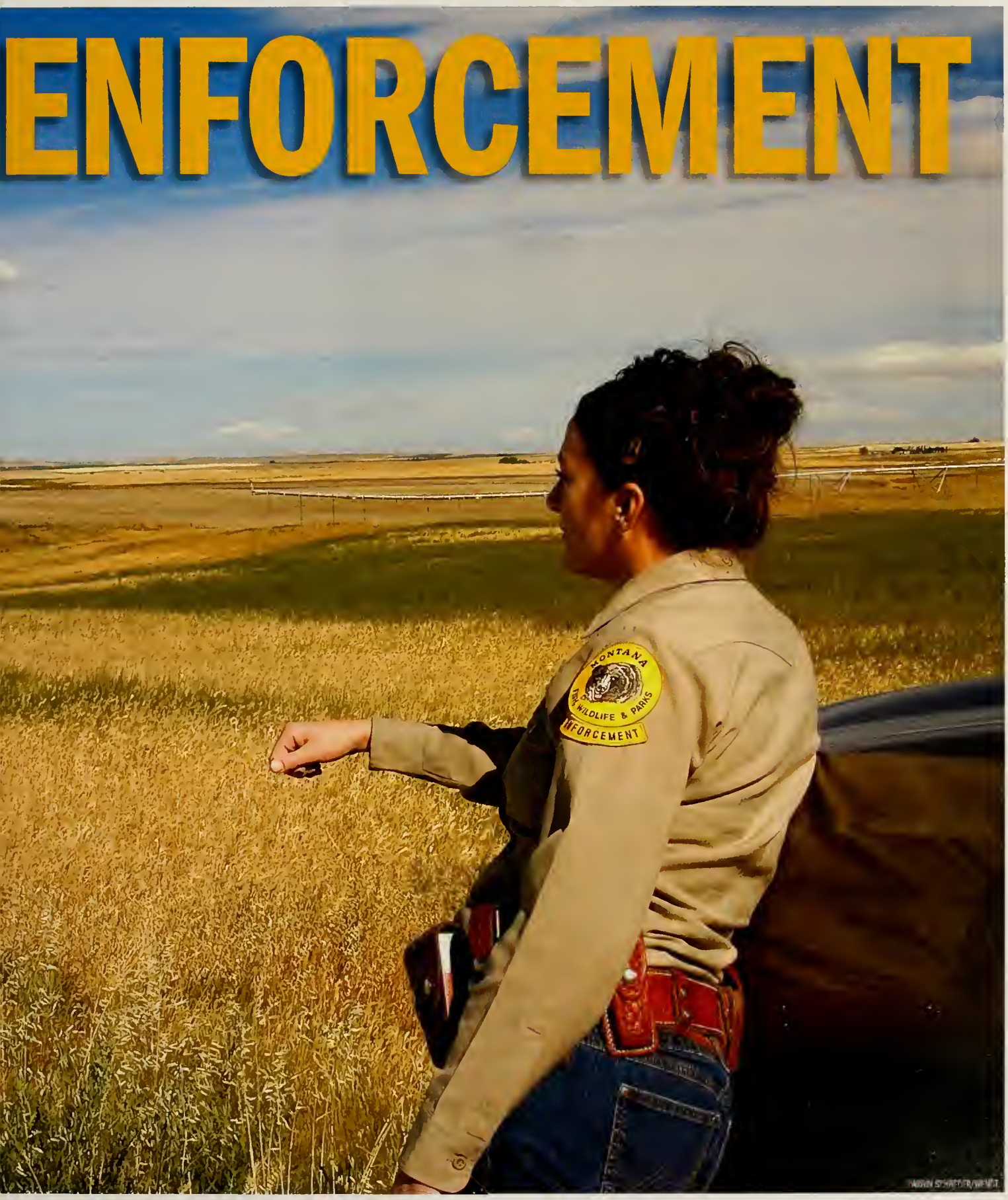
After spending a summer checking life jacket and boating equipment compliance as a water safety officer and ex-officio game warden, Kuka (whose first name is pronounced *quinn*) decided she wanted to be the real deal. "I'd be out on the water working with the wardens, and they'd get a call and tell me, 'We have to go handle a bear or work on a poaching case.' I really wanted to go along and do that."

She got her wish. Now based in Conrad, the FWP game warden defends wildlife against poaching and enforces other game law infractions, meets with landowners, and carries out dozens of other conservation law enforcement duties. "I get to see so many beautiful places and meet interesting people every day," she says. "This is such a great job. I can't imagine doing anything else."

Kuka is one of five female game wardens now working for FWP. They are part of a female contingency comprising roughly 12 percent of law enforcement officers nationwide, up from 2 percent in the 1970s, according to the California-based Center for Law Enforcement Training. Jim Kropp, chief of the FWP Enforcement Division, says that for years the department had only one female warden but has hired four in the past two years. Though the five still represent just 7 percent of the state's 70 wardens, Kropp says they are beginning to change the face of game law enforcement in Montana. "Law enforcement has been undergoing changes nationally, and we've seen this reflected through more women applying to be wardens," he says. "We think that's great. These recent candidates went through our tough hiring process and ended up at the front of the pack. More women in our ranks is a sign of the times, and one we in the Enforcement Division and the agency as a

Warden Kqyn Kuka on patrol in her Conrad district. FWP recently hired Kuka and three other women wardens, a substantial increase from just a few years ago. "It's a sign of the times that we welcome," says Jim Kropp, Enforcement Division chief.

ENFORCEMENT



★ Kuka listens to a bird hunter: "I really like it when they tell me their stories."

DARRIN SCHREDER/WENDT

whole welcome and embrace. It's tough work being a game warden. We're proud of everyone who casts their lot with us to protect Montana's wild resources."

RIGHT AT HOME

Kuka grew up in Great Falls, the daughter of nationally renowned American Indian painter King Kuka. After attending several colleges and earning her B.S. in environmental studies, Kuka found herself in a position familiar to many people in their mid-20s. "I had no idea what to do with my life," she says. "All I knew is that I wanted to be outside, that I loved Montana's natural resources, and I liked working with people."

Those qualifications, along with her four-year degree and proficiency in written and oral exams, earned Kuka a shot at becoming a game warden, a position she attained in September 2007. By chance, FWP has stationed her in a district that includes her father's childhood stomping grounds on the south border of the Blackfeet Reservation. An uncle lives in nearby Valier, and the local sheriff is also a relative. "I feel right at home here," she says.

Kuka says she has been surprised so much of her job entails talking to people. "A lot of it is about developing relationships. I can't be everywhere, so I need people in the community to be my eyes and ears. The only way that can happen is to build their trust." That comes easy to the 28-year-old game warden. "I enjoy talking, and listening. I really like it when anglers and hunters tell me their stories."

Kuka says she regularly runs into hunters surprised by her gender. "I pull up in the truck and they say 'Oh, you're a girl.' But once you talk to them, then they start just accepting you for who you are."

Being a game warden and a mom, with daughters 8 and 3, hasn't kept Kuka from enjoying the outdoors during her time off. She killed her first elk last year, and the year before that shot her first buck—while her older daughter watched and her 9-month-old rode in a backpack.

PERFECT FIT

Jen Williams, a warden in Bozeman, got her first look at conservation enforcement work right out of college. After earning her B.S. in wildlife management at Montana State University, she landed a technician job at the FWP wildlife laboratory in Bozeman. "I liked the forensics work. Determining the cause of death of an animal from start to finish is intriguing."

Williams grew up in Great Falls, camping, fishing, and hiking with her family. Law enforcement was a familiar occupation: Her grandfather was a highway patrolman. "He worked all over the state, and I'd see how he was with people, open and friendly, and that always appealed to me." Spending all day in a patrol car didn't, however.

Having met many wardens and observing their work while in the wildlife lab, Williams decided to become a warden herself. She is now in her probationary year, which began last spring with a battery of tests. Like other new officers, Williams is constantly being coached and instructed. "The training officers and other wardens I work with are awesome," she says. "Everyone here gets along so well and works so cooperatively." In January, Williams will attend a 12-week basic course at the Montana Law Enforcement Academy, along with other new wardens, deputy sheriffs, city police officers, and highway patrol officers. Afterward she will continue her game warden training based in Bozeman.

Williams says she has been surprised by the diversity of game law enforcement work. "I do so many different things—hike, ride a horse into the backcountry, ride an ATV or snowmobile—whatever it takes to make good contacts. Wardens need to be in the field and maintain a visible presence." Williams says that a few weeks earlier, she spent part of a day hiking into the Pintler Range to check anglers at two mountain lakes. "It was so beautiful and fun, and I was thinking, 'I can't believe this is my *job*.'"

Being a warden is a "perfect fit," Williams adds. "I need to be doing something different all the time, I need to be outdoors a lot, and I need to interact with people. I love Montana and what we have here, and I wanted a job where I can help protect it."

★ Jen Williams on a backwoods patrol

PHOTOS BY MONTANA FWP

COMING FULL CIRCLE

Ann Engstrom has fulfilled her childhood dream of protecting wildlife in northeastern Montana. It just took a lot longer than she ever expected.

The 38-year-old Plentywood game warden grew up in a Sheridan County ranching family, hunting, fishing, riding in rodeos, and working on the farm. "I've been throwing hay bales since I was 12," says Engstrom. In high school, she imagined someday working outdoors and protecting antelope, deer, and other wildlife from poachers. Life drew her in a different direction. After attending Montana State University for two years, she moved briefly to Wyoming and then to North Dakota, where she found herself raising horses and working in a small-town bank. "I looked around and thought, 'I've got to get back to what I was originally interested in.'" After graduating from Minot State University with a B.S. in criminal justice, she returned to eastern Montana and was hired first as a deputy and then appointed undersheriff for Sheridan County, where she worked for six years. "That's when I reminded myself that originally I wanted to be a game warden, so when the opportunity came along, I applied."

FWP hired Engstrom in June 2008 and stationed the new game warden in her home territory, where she intends to stay. She has two children—a son 18 and a daughter 10—as well as chickens, ducks, geese, dogs, and nine horses ("about eight more than I really need"). In Plentywood she's near childhood friends and her parents. "I have my roots here. Besides, I don't know what I would do with the animals."

Though she worked in law enforcement previously, Engstrom says being a game warden requires a different approach. "The main difference is that with the sheriff's office, you are always reacting to someone doing something wrong. As a game warden, you're much more proactive. You're talking to hunters and anglers, making contacts, building trust with people who for the most part have the same interests you do—hunting, fishing, protecting the resource. It's a whole different approach."

Having previously worked in a male-dominated environment, Engstrom is used to the occasional smart remark from hunters and landowners. "I'm in a position that has historically been held by a man, and some people will comment on that. You learn to keep your chin up and just focus on the task at hand."

WEST COAST TRANSPLANT

Britt Wallace grew up in Oregon but says she feels completely at home working in Montana as a game warden. "I love this state, and all my life I wanted more than anything to have a job protecting natural resources," she says.

Wallace, who has a B.S. in recreational management from the University of Montana, arrived in Big Sky Country after working several years in other western states. "I was a ski bum for a few years, trying to figure out what I wanted to do with my life," she says. While earning her degree in Missoula, she worked part-time at the front desk of the FWP regional office. She learned about the Enforcement Division's Trainee Program for college juniors and seniors. "I thought the program sounded like a great idea, because it gives FWP the chance to see if you are a good fit for the job, and you get the chance to see if this is really what you want to do for a career," says Wallace.

Now the FWP game warden in Livingston, Wallace says the job matches her skills, interests, and personality. "There's great flexibility. You get to be outside. You deal with people all day long, which I like a lot. And you learn something new every day."

In addition to rules, regulations, codes, seasons, and other law enforcement information, Wallace has been learning everything she can about wildlife. "I've had the opportunity to better understand how elk and deer behave, what type of habitat they prefer, and what they are eating," she says. Since moving to Montana, Wallace has also begun hunting big game, an activity that likely will be greatly curtailed by her new duties. "As a warden, I'll be working a lot during the hunting season, so I probably won't have as many chances to go hunting as before."

Wallace, who is 28, says working in an environment where most of her colleagues and citizen contacts are men is nothing new. "I've been a firefighter, ski patrol, and ski lift

★ Plentywood warden Ann Engstrom

★ Britt Wallace checks fishing licenses and life jacket compliance on the Big Hole River.

operator. I'm used to working in male-dominated fields."

THE VETERAN

Wendy Kamm began her career in Montana in 1982 as a U.S. Forest Service smokejumper based in Missoula. After four years of fighting fires and carrying 100 pounds of gear up mountainsides, Kamm looked for a different outdoors occupation. "I'd never thought about a career in law enforcement, but then I looked into being a game warden, and it looked like a good fit."

Kamm worked as a warden in Billings for one year then in Glendive for two more before moving to the Fort Benton district, where she has been stationed for 19 years. "My family was in the shipping business, so as a kid I lived all over the world. It's interesting that I've ended up in this small town in the middle of Montana. I like it here, the people and the pace of life."

Like other wardens, Kamm's job primarily entails "making contacts"—talking to hunters, anglers, and landowners—while patrolling her 4,000-square-mile district to enforce trespass laws and game regulations. The 54-year-old warden is also a field training officer responsible for instructing newly hired game wardens, an emergency medical technician, and a hunter education instructor. In addition, Kamm teaches ice rescue to search-and-rescue crews across Montana.

Her favorite part of being a game warden is solving cases. "I like the mental challenge of puzzling out what happened," she says. "Maybe you get a call from a landowner about someone trespassing, and he gives you the license number. You check that and then ask around and maybe learn there are other previous violations involving other people. You make some calls, and investigate more. That's how you start to build a case."

Kamm says she tries to be fair and judicious when observing a violation. "I use discretion when it seems like there is genuine confusion about a law. But if I see premeditation, opportunism, or failure to read the regulations, they get a ticket, and I sleep just fine, thank you. There's an attitude out there that all we want to do is write tickets. But we're trying to help people, protect public safety, and protect Montana's fish and wildlife. So when we have landowners and other hunters recognize that, and call us with information, that's really gratifying."

After working 22 years as a game warden, Kamm says she is disappointed to still meet people who don't pay her the same respect they do a male warden. "As a field training officer, when I'm out with a male trainee, hunters almost always will talk to him and not to me. So that's frustrating. But I just laugh it off."

As for FWP's four new women wardens, Kamm is optimistic about their chances of becoming top-notch wildlife enforcement professionals. "I think they will do really well. They're all well qualified and they understand what this job is about. I'm definitely pleased to see more women in enforcement."

★ Warden Wendy Kamm checks an angler's license on the Missouri River at Fort Benton.

DAVE HAGENGRUBER/MONTANA FWP

Wardens ask: "How are we doing?"

Montanans rate FWP enforcement performance

In 2007, the FWP Enforcement Division set out for the first time to learn how Montana hunters, anglers, park users, and other recreationists view game wardens and the agency's game law enforcement program. "Wardens have more contact with more people in the field than anyone else in FWP," says Tom Flowers, a regional criminal investigator based in Choteau. Flowers produced the survey as part of a special project at Colorado State University for the Western Association of Fish and Wildlife Agencies. "We wanted to know how people perceived their interactions with wardens, what their attitudes were toward wardens, and specific strengths we should build on or where we need improvement."

Flowers, working with public survey specialists in the FWP Responsive Management Unit, produced a questionnaire with 28 questions covering several general areas. The questionnaires were sent to 962 citizens who had previously been in contact with a game warden. A total of 554 surveys were completed and returned to FWP. Some results:

1. IMPRESSIONS OF GAME WARDENS

Overall, 92 percent of survey respondents viewed their experience in the field with a FWP warden as "positive" or "very positive." Respondents indicated they would rate the particular warden they met as:

	AGREE	STRONGLY AGREE
Professional	33%	61%
Courteous	29%	68%
Knowledgeable	34%	58%
Fair	32%	64%
Friendly	27%	71%

Eighty-three percent reported they thought FWP wardens overall are doing a "good" or "very good" job enforcing FWP laws and regulations.

2. IMPORTANCE OF DUTIES

Respondents rated the relative importance of current FWP warden duties:

DUTY CONSIDERED IMPORTANT OR VERY IMPORTANT	
Enforce hunting rules/regulations	98%
Enforce fishing rules/regulations	95%
Enforce fishing access site rules/regulations	88%
Enforce state park rules/ regulations	82%
Patrol during hunting season	95%
Patrol during fishing season	91%
Patrol at fishing access sites	83%
Patrol state parks	76%

3. EFFECTIVENESS OF ENFORCEMENT TOOLS

Respondents identified the relative efficacy of different ways wardens deter illegal activities. The highest ratings went to:

ENFORCEMENT TOOL CONSIDERED EFFECTIVE OR VERY EFFECTIVE	
Random patrols	93%
Issuing citations	91%
Issuing written warnings	88%
Using random game check stations	88%

Less effective tools cited by respondents were scheduled patrols and using traditional game check stations.

VIOLATIONS

FWP asked what people thought were the most common reasons for violating fish, wildlife, and parks laws. Fifty-eight percent of respondents answered that violations are most often due to an honest mistake or lack of knowledge regarding the law. Forty percent thought violators know the law but break it anyway when presented with the opportunity. Only 2 percent thought the most common reason was that people intentionally set out to violate the law.

Only 4 percent of the respondents thought violators are almost always caught, while 52 percent believed they are caught sometimes, and 44 percent said game law violators are hardly ever caught.

Jim Kropp, FWP Enforcement Division chief, says he and his staff are looking closely at these and other survey results. "What we take away from this is that Montana game wardens are considered professional, courteous, and fair by the vast majority of people they come into contact with," he says. "It's important to note that the survey also shows that the public thinks we should continue emphasizing the enforcement of hunting and fishing rules and regulations as among our top duties, and that we should continue patrolling the field, especially using random patrols."

Kropp says several new game wardens have recently joined FWP, "and this survey will help us demonstrate to them the high standards of public responsiveness that we strive for."

Saving Homewaters: The Story of Montana's Streams and Rivers

Gordon Sullivan. The Countryman Press. 253 pp. $24.95

The history of Montana's rivers and trout fisheries could fill a library. Gordon Sullivan has mastered that library and condensed his findings into this single essential history. Sullivan is a professional photographer and writer who has spent his life on Montana's rivers. Several years ago while fishing a boyhood stretch of the Big Hole, he decided he needed to tell "the story of our heritage as Montana fly-fishers and conservationists." The story began more than a century ago, as waste from gold, silver, and copper mines poisoned the state's rivers and rendered them nearly devoid of trout. By the early 1900s, anglers began expressing outrage over the pollution of public waters. That anger turned to action, Sullivan writes, as conservationists galvanized in the mid-20th century and pushed for stronger environmental legislation such as Montana's stream and streambed protection laws and the federal Clean Water and Wilderness acts. Among the stories Sullivan relates are the fight to prevent Allenspur Dam from inundating the Paradise Valley and the battle to keep energy companies from draining the Yellowstone and its tributaries in southeastern Montana. ■

One Woman's Montana

Kathe LeSage. Riverbend Publishing. 80 pp. $24.95

The beautiful, haunting images in this slim volume were taken by Kathe LeSage, who teaches photography at Montana State University and Carroll College and lives in Wolf Creek, north of Helena. LeSage's soft, dramatic, and richly colored photographs evoke an elegance that belies her often grim subject matter. A deer skull covered in red leaves seems to be smiling in repose. A dead duck's webbed foot appears ready to take a strong stroke through water. LeSage also finds lyrical grace in the plain subject matter of roads, fields, and abandoned barns. Pictures of leaves, trees, and branches convey nature's rhythmic patterns. Her images of ranching and sheep shearing capture the quiet dignity of timeless physical labor. ■

New West Cuisine: Fresh Recipes from the Rocky Mountains

Chase Reynolds Ewald and Amy Jo Sheppard. Gibbs Smith, Publisher. 224 pp. $29.95

The authors of this beautifully illustrated cookbook collaborated to highlight 15 great kitchens in mostly Montana resorts, ranches, and restaurants, including the Pearl Cafe and Bakery in Missoula, Log Cabin Cafe in Silver Gate, and Papoose Creek Lodge in Cameron. The book invites readers into each establishment to learn its history and the inspiration behind the kitchen's fame. Photographer Audrey Hall captures the charm of each cafe and lodge and the beauty and culinary appeal of dishes like Herb-Encrusted Elk Rack with Wild Berry Sauce, Rainbow Trout Tacos with Corn Relish and Avocado Sauce, and Bear Lake Raspberry Pudding Cake. ■

Montana Panoramic: Volume 1: 1997–2007

Craig W. Hergert. Great Wide Open Publishing. 210 pp. $75

It's impossible to convey the sweeping immensity of a Montana landscape with a single photograph. So Bozeman photographer Craig W. Hergert takes several and pastes them together with a computer program to create unparalleled panoramic scenes. In this new collector's edition, Hergert compiles 114 of his most impressive images of wilderness areas, prairies, cityscapes, and historic sites taken over the past decade. Viewing his 180-plus-degree panoramas is as close as you can get to actually visiting scenic places such as the Bridger Range, Paradise Valley, and Lee Metcalf Wilderness. Hergert's ability to capture and highlight the diversity and grandiosity of landscapes makes the average Montana postcard look like a Kodak Instamatic snapshot. ■

Famous Firearms of the Old West

Hal Herring. Morris Book Publishing. 190 pp. $24.95

Hal Herring, of Augusta, has long been interested in firearms and even more so the stories behind "personal weapons." Examining a firearm in a museum, he writes in *Famous Firearms of the Old West*, inspires imaginings about who owned it. "The rifle, or pistol, or whatever we are looking at, is also proof of something very elusive, something that often cannot be easily imagined," he writes. "*This really happened.*" In his book, Herring tells the stories of a dozen legendary weapons that "exist now as windows into the men and women who fought—righteously or not—and died, or were willing to die, with them." Illustrated with color images from museums and collections across North America, each chapter tells the story of the firearm model and the individual who came to possess that particular gun, such as Geronimo and his Winchester

Model 1876 carbine and James Butler "Wild Bill" Hickok's Colt Model 1851 revolvers. Herring's passion for historical firearms is infectious, his prose as tight and expressive as a finely wrought spy novel. "They sit there behind glass," he writes of the Remington Model 8 semi-auto and other firearms used to gun down Bonnie and Clyde in 1934, "tools of violence from a hard and bygone era, variously steeped in rage, or in righteousness, the sweat of adrenaline or terror darkening their wood and etching their steel." ■

Bird: The Definitive Visual Guide

Audubon. DK Publishing. 512 pp. $50

Perhaps never before has there been a bird book of such monumental photographic scope and detail. Produced in collaboration with Audubon and BirdLife International, this massive volume, which weighs over 5 pounds, profiles more than 1,000 bird species worldwide, from the Galapagos penguin and New Zealand robin to the Arctic loon and Siberian crane. Thousands of color photographs, drawings, and maps complement descriptions of behavior, reproduction, migration, and other aspects of avian natural history. ■

Wild River Pioneers: Adventures in the Middle Fork of the Flathead, Great Bear Wilderness and Glacier National Park

John Fraley. Big Mountain Publishing. 232 pp. $18.95

The Middle Fork of the Flathead River rises from the heart of the Bob Marshall Wilderness and flows northwest through grizzly, lynx, and wolverine habitat, its waters home to westslope cutthroat and bull trout. Yet this wildest of Montana rivers also contains a rich history of human use and habitation, a history John Fraley set out to learn and document. Manager of the FWP regional Communication and Education Program in Kalispell, Fraley has spent more than 30 years on the Middle Fork of the Flathead, as a fisheries biologist and also a hunter, angler, and trapper. During frequent forays along the river, he occasionally stumbled upon a cabin remnant or an old blaze mark on a dead snag. Of the trappers, loggers, outlaws, and others who left these remains, Fraley writes, "I wanted to discover their stories...and dig deep into the lore and legend of the drainage." Fraley exudes great admiration for his predecessors, whom he calls the "Wild River Pioneers," and hunts with a police detective's determination for clues in cemeteries, archives, and coffee shops to illuminate and verify their stories. The result is a history that enlivens both the people and landscape of this remote wilderness drainage. ■

Charles M. Russell: Printed Rarities from Private Collections

Larry Len Peterson. Mountain Press Publishing Company. 213 pp. $45

Charles M. Russell: A Catalogue Raisonné

Edited by B. Byron Price. University of Oklahoma Press. 348 pp. $125

Two new collections of Charles M. Russell art were published in 2008. One is a newly revised version of Larry Len Peterson's previously published *Charles M. Russell, Legacy: Printed and Published Works of Montana's Cowboy Artist*, which won the prestigious Western Heritage Award for best art book of 2000. In this new edition, Peterson selects the rarest images from his previous book and adds dozens of new ones, including some never before published. A Plentywood native, medical doctor, and Western art collector, Peterson has gathered Russell material from four private collections, including Great Falls resident Jim Combs's superb collection of Russell postcards, cigar boxes, menus, Christmas cards, and other ephemera.

The other new Russell book, *Charles M. Russell: A Catalogue Raisonné*, is richly illustrated with more than 200 reproductions of the artist's greatest works. The images are complemented with essays by experts and scholars who address important aspects of Russell's remarkable life. The book is published in cooperation with the C.M. Russell Museum in Great Falls and the Charles M. Russell Center for the Study of Art of the American West at the University of Oklahoma. It includes a unique key code that allows purchasers to access a private on-line catalogue of more than 4,000 works that Russell created and signed during his lifetime. Original owners of the handsome volume, which won the Western Heritage Award for best art book of 2008, receive unlimited access to the site after registering. ■

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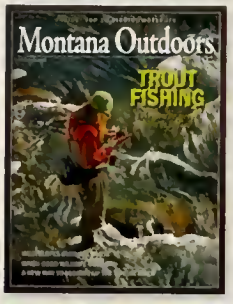

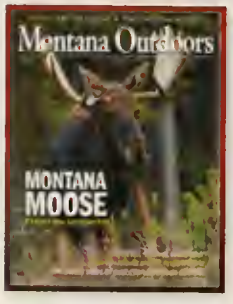

All stories from 2008 issues of Montana Outdoors are available on-line at *fwp.mt.gov/mtoutdoors*.

JANUARY–FEBRUARY 2008

Our 27th annual all-photography issue, with explanations of how scientists describe Montana's distinct ecosystems and plant and animal communities

MARCH–APRIL 2008

Keeping an Eye on the Wanderer Peregrine falcons were taken off the endangered species list nine years ago. Researchers and volunteers continue to monitor these lightning-fast raptors to make sure they stay off. *By Deborah Richie Oberbillig*

State of the Grizzly Now that the Yellowstone bears have been delisted, what's in store for Montana's other grizzly populations? *By Christine Paige*

Playing It Too Safe? By making it harder for kids to explore and play in the outdoors, we may be losing future conservationists. *By Brian Maffly*

Muleys on Main Street Why Helena's deer problem could soon spread to communities throughout Montana. *By Tom Dickson*

Everyone Wins More money for K–12 education. More recreational access to state parcels. What's not to love about Montana's new Land Banking Program? *By Tom Dickson*

MAY–JUNE 2008

Conserving Westslopes on the East Slope FWP, federal agencies, and conservation groups are working to prevent cutthroat trout populations east of the Continental Divide from disappearing forever. *By Jeff Erickson*

10 Great Spots to Watch Birds in Montana If you don't see birds here, you're just not trying. *By Craig and Liz Larcom*

Bypassing the Barrier For the first time since Grover Cleveland was president, sauger, sturgeon, and other fish species are swimming up the Tongue River past 12-Mile Diversion Dam. *By Brett French*

New Perspectives on Trout Fishing Photo essay

That Critter's Got to Go Professional nuisance trappers come to the rescue when wildlife gets a little too up close and personal. *By John Fraley*

Next Time Essay. *By John Barsness.*

JULY–AUGUST 2008

A Close Look at Mountain Lions What a ten-year study uncovered about cougars, their kittens, and the effects of heavy hunting pressure. *By Sam Curtis and Tom Dickson*

Fire Season Essay. *By Rick Bass*

The Nose Knows How scent-detecting dogs locate fishers, lynx, and other hard-to-find wildlife species. *By Kathryn Socie*

Hunting the Elusive *Orchidaceae* The expedition would take her deep into the forest to places few people had ever seen—places where she might find rare species that had eluded her for years. *By Ellen Horowitz*

Little-Known Gems Low-profile state parks are treasures just waiting for you and your family to discover. *By Lee Lamb*

Lessons on Neighborly Relations Learn how to live harmoniously with wildlife at the newly renovated Lone Pine State Park visitor center. *By L. A. Cromrich*

Keeping the Magic in Montana Through the FWP Foundation, people can help conserve elk, grizzlies, state parks, and other natural and cultural resources that make Big Sky Country such an enchanting place. *By Lee Lamb*

SEPTEMBER–OCTOBER 2008

Flush With Birds A look at Montana's remarkably diverse upland bird populations. *By Dave Carty*

A Boom in a Silent Sport Along with more participants, bowhunting is attracting increased regulatory scrutiny. *By Andrew McKean*

Clinging to Existence Mountain goats have survived for thousands of years in some of the state's most unforgiving environments. So why are some populations now declining? *By Chrissy Koeth*

Drawing a Line Club members participating in the Sportsman User Value Mapping Project are saying, "Don't develop where we hunt and fish." *By Tom Dickson*

A Beginner's Guide to Duck Hunting in Montana Basic advice on one of the state's least crowded hunting opportunities. *By Dave Carty*

NOVEMBER–DECEMBER 2008

A New Piece of Paradise FWP's newest wildlife management area and state park offers more than 9,400 acres of hunting, wildlife watching, and hiking, as well as camping and Yellowstone River fishing. *By Tom Dickson*

Mending Fences Ranch appreciation work days allow sportsmen to give something back. *By Alan Charles*

Tall, Dark, and Handsome Despite their great size and increased numbers, moose remain a mostly mysterious presence in Montana's forests. *By Ben Long*

24-Carat Venison Advice on preparing gold-standard meals from prime cuts of deer and elk meat. *By Tom Dickson*

Permission Denied Why so many landowners are turning down requests to hunt, and what that holds for the future of public hunting in Montana. *By Hal Herring*

The Changing Face of Game Law Enforcement Five women talk about how they entered the game warden profession. *By Tom Dickson*

BACK ISSUES
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Black-tailed prairie dog

Cynomys ludovicianus

BY JIM HAMILTON

Years ago, while earning my graduate zoology degree at the University of Montana, I studied black-tailed prairie dogs to determine if they hibernated in winter. While watching several colonies in the wild near Helena, I noticed that the prairie dogs disappeared only during severe cold, then reappeared when temperatures moderated. Were they hibernating when underground?

My colleagues and I conducted controlled lab experiments in winter and found that the grassland rodents could lower their body temperature to just a few degrees above freezing. When in this torpid state, the animals felt like furry ice cubes, rigid and cold to the touch. Amazingly, after we removed the prairie dogs from the refrigerator and warmed them, the animals were alive and well. We attempted the same experiments in late spring and summer under the same artificial conditions. The prairie dogs did not go into temporary hibernation as they did in winter.

This phenomenon is just one of the black-tailed prairie dog's many interesting traits.

BEHAVIOR

Black-tailed prairie dogs hibernate, but not exactly like the yellow-bellied marmot, Columbian ground squirrel, white-tailed prairie dog (found in extreme south-central Montana), and other "obligate hibernators." These species enter a state of torpor at the same time each year, usually near summer's end, regardless of the outside temperature.

Black-tailed prairie dogs are "facultative hypotherms," which means they hibernate only under extreme conditions of reduced temperature in winter. It is amazing how healthy and well-fed they appear in midwinter, despite the lack of food. They are extremely efficient at metabolizing their stored body fat, even when scurrying around their towns. That activity is also why blacktails spend more time "bulking up" on various grasses and forbs before winter than other prairie dog species.

COMMUNITIES AND RANGE

Prairie dog towns, or colonies, contain a series of earthen mounds housing one or more burrows per family. The colonies can cover up to several hundred acres and house 1,000 or more prairie dogs. Prairie dogs are considered a "keystone species" because burrowing owls and dozens of other grassland species depend on the rodents and their burrows for food and shelter. Black-tailed prairie dog colonies are scattered throughout the plains of central and eastern Montana. FWP recently began a statewide prairie dog survey to get a better sense of their abundance.

REPRODUCTION

Prairie dogs begin breeding in spring as soon as they emerge from hibernation. Gestation lasts for 24 days, after which a female gives birth to two, three, or four young. The pups start running around by late May. Females produce a single litter each year.

PREY

Prairie dogs are an important food source for coyotes, badgers, eagles, ferruginous hawks, and the rodents' most famous predator, the endangered black-footed ferret. Despite reintroduction attempts, ferrets are now rare in Montana, making their effect on prairie dog populations negligible.

MANAGEMENT

In Montana, black-tailed prairie dogs are confusingly classified. They are considered a "vertebrate pest" by the Department of Agriculture when injuring agriculture (the rodents can compete with cattle for forage, especially during drought) and at all other times as "nongame wildlife" by FWP under the state Nongame Act. FWP considers the black-tailed prairie dog one of 15 Montana mammals "in greatest conservation need." A working group of conservationists, biologists, ranchers, shooters, and other stakeholders meets regularly to discuss prairie dog management and find ways to ensure the species' long-term survival in Montana. Though far less numerous than before European settlement, prairie dogs are still abundant in many parts of eastern and central Montana.

TIMCHRISTIEPHOTO.COM

Jim Hamilton, of Florence, is a freelance writer and a biological consultant for several wildlife conservation organizations.

WHAT'S AHEAD?

An elk trail disappears into the Missouri River Breaks north of Jordan. See page 28 to learn why elk and other game species across Montana are becoming increasingly inaccessible to hunters. Photo by Denver Bryan.

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Runner-up: 2007

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